

THE PSYCHOLOGICAL BULLETIN

I. GENERAL

535. KRÜGER, H., Zur philosophic des Ainesidemos von Knossos. Ein strukturpsychologischer Versuch. *Arch. f. d. ges. Psychol.*, 1924, 48, 148-173.

Strukturpsychologische Entscheidung über das Verhältnis des Ainesidem zu Heraklit auf grund eines bisher unerklärten Wortes, wonach das "Jetzt," sowie die "Zeit" *δῶμα* und *οὐδία* sei, gleichsam Ainesidems "Urerlebnis": Nur der gegenwärtige Moment hat Realität; er ist die *Usia*, das wahrhaft Seiende. Diese völlig unantike Zeitauffassung verrät deutlich die idealistische Struktur seiner Philosophie: Alle Existenz besteht im augenblicklichen Erlebtwerden: *esse* = *percipi*! Diese Anschauung, die zweifellos, durch Ablehnung des herkömmlichen Substanzbegriffes, der Lehre Heraklits vom Flusse aller Dinge ähnelt, hielt Ainesidem irrtümlicherweise für identisch mit ihr, und da ihn die skeptische Tropenlehre zur Chronos-*Usia*-Theorie geführt hatte, bezeichnete er die Skepsis als Weg zum Heraklitismus. H. KRÜGER (Rostock).

536. LINDWORSKY, J., Revision einer Relationstheorie. *Arch. f. d. ges. Psychol.*, 1924, 48, 248-289.

Nach genetisch-synthetischer Methode wird versucht, die Relationsbegriffe wie "gleich," "verschieden" usf. als Entwicklungsprodukte abzuleiten. Die Fähigkeit, einen anschaulichen Inhalt im Hinblick auf einen andern zu betrachten, das aktive Beziehen, ist ein letztes Datum. Geht aber das Subjekt von einem Inhalt zum andern beziehend über, so erlebt es ausser den bezogenen Inhalten noch

weitere anschauliche Inhalte und Sachverhalte. Manche dieser anlässlich des Beziehens erlebten Nebeneindrücke und Begleitsachverhalte kehren wieder, wenn der Uebergang zwischen objektiv gleichen Inhalten stattfindet; andere kehren wieder, wenn der Uebergang zwischen objektiv verschiedenen geschieht usf. Die so wiederkehrenden Begleiterlebnisse bilden zusammen mit dem Sachverhalt, dass sie beim Uebergang zwischen zwei Inhalten erlebt werden, einen Komplex, und dieser Komplex ist eben der Relationsbegriff. Eine Auseinandersetzung mit anderen Relationstheorien und eine Skizzierung der weittragenden Folgerungen dieser neuen Theorie schliesst sich an. J. LINDWORSKY (Köln).

537. KAFKA, G., Zum Begriff des "Psychischen" und seiner Entwicklungsgeschichte. *Arch. f. d. ges. Psychol.*, 1924, 48.

Im Begriff des Psychischen sind seiner Natur nach von jeher 3 Unterbegriffe, die des Subjektes, des Aktes und des Objektes, enthalten und mit einander verflochten. Diese Begriffe, ursprünglich vieldeutig gefasst und ungesondert zusammengedacht, streifen im Lauf der Entwicklung immer mehr unwesentliche Merkmale ab und lassen die zwischen ihnen bestehenden Beziehungen immer reiner hervortreten, so dass schliesslich der Begriff des Psychischen nur mehr aus dem Inhalt jener Beziehungen zu erfassen ist. Abschliessend wird das Verhältnis der Begriffe des Psychischen und des Bewusstseins erörtert. G. KAFKA (Dresden).

538. CHILD, C. M., The Problem of Pattern in Organisms. II. The Physiological Gradients. *Amer. Nat.*, 1924, 58, 32-2336.

Another interesting discussion, covering too much ground to review effectively, but covering the following problems in a general way: The physiological gradients as factors of pattern; dominance and subordination in relation to the gradients; the origin of the physiological gradients; the problem of surface-interior pattern; organismic pattern and the chromosomes. It is recognized that the nuclear substance is of fundamental importance in relation to the specific hereditary constitution of the protoplasm of a particular species, but this constitution, the author believes, represents not organismic pattern, but the material or substratum on which this pattern is superimposed as a physiological order which merely determines what potentialities shall be realized and where each realization shall occur. There is no necessary conflict between this conception

of organismic pattern and the theories of chromosomal pattern. For the realization of different potentialities in different cells or cell groups, all of which originally possess all the potentialities, a pattern on a larger scale is necessary, and this pattern must be of external origin. R. H. WHEELER (Oregon).

539. CHAMBERLAIN, J. C., Concerning the Hollow Curve of Distribution. *Amer. Nat.*, 1924, 58, 350-374.

A most interesting paper dealing with the difficulties of interpreting statistical data. While the problems are too numerous and technical to review here, it is worth mentioning that the problem involved in general is the old one of reading from curves back to nature in the absence of adequate, qualitative knowledge of nature. The spirit of the article is condensed in the statement: "It is only too apparent that many biologists, if not openly contemptuous of ———, the systematist, seem to forget that *his* is the tie that binds, in large part at least, whatever information their own researches have yielded into the general fabric of our biological knowledge." R. H. WHEELER (Oregon).

540. HUMPHREY, G., The Psychology of the Gestalt. *J. Educ. Psychol.*, 1924, 15, 401-412.

The Gestalt theory as given is, very briefly, that psychology should be the study of whole processes and their interactions, which we experience, rather than of simple sensations and other artificial units which we never experience. Thus is established a new kind of psychological unit, one which further division alters, though artificially it may be subdivided. Wertheimer, Köhler, and Koffma are named as the chief exponents of the system which Humphrey estimates to be of established though unmeasured value. The Gestalt theory springs directly from experimental work and has proved very fruitful in presenting hypotheses for further experimentation. In educational psychology it promises to throw light on such problems as reading, transfer of training, maze learning, etc. It has already aroused considerable speculation in the general theory. Humphrey gives a thorough, brief criticism which is worth reading. S. D. WEINLAND (Lehigh).

541. SHEN, E., The Standard Error of Certain Estimated Coefficients of Correlation. *J. Educ. Psychol.*, 1924, 15, 462-465.

When the reliability coefficient of a test is determined from the correlation between its two halves by means of the Spearman-Brown

formula, certain assumptions are involved and its standard error is greater than that given by the ordinary formula for the standard error of a correlation coefficient. And again when the correlation coefficient between two tests or two functions is "corrected" for attenuation, it is also a case of estimation and involves certain assumptions. In order that specific formulae may be available for such cases, they are here derived and explained. S. D. WEINLAND (Lehigh).

2. NERVOUS SYSTEM

542. LASHEY, K. S., Studies of Cerebral Function in Learning. V. The Retention of Motor Habits After Destruction of the So-Called Motor Areas in Primates. *Arch. of Neurol. and Psychiat.*, 1924, 3, 249-276.

"The greater part of the precentral gyrus of both hemispheres was destroyed in monkeys which had been trained previously in habits of manipulation and visual discrimination. When the animals recovered from paralysis, it was found that they showed perfect retention of these habits. From this it is concluded that the so-called motor areas are not directly concerned with the performance of complex learned activities. The motor impulses of conditioned reflexes must descend from other areas of the cerebral cortex than the precentral gyri, and the latter cannot be regarded as the source of impulses to 'voluntary movements.' Destruction of the corpus striatum subsequent to recovery from diplegia produced only the usual symptoms of striate lesion without recurrence of the symptoms of cerebral paralysis. Recovery from paralysis was therefore not due to vicarious function of this nucleus. The evidence for considering the precentral gyrus as a part of the kinetic mechanism for reflex control of spinal posture and for maintenance of excitability of lower motor centers is summarized." W. P. McELROY (Boston Psychopathic Hospital).

543. POLLOCK, L. J., and DAVIS, L. E., Studies in Decerebration. II. An Acute Decerebrated Preparation. *Arch. of Neurol. and Psychiat.*, 1924, 3, 288-293.

A description of the behavior of cats after decerebration by rendering certain parts of the nervous system anemic. The method (as described in the first article of the series) consisted of ligature

of the basilar and carotid arteries. W. P. McELROY (Boston Psychopathic Hospital).

544. MÜLLER, A., Das Individualitätsproblem und die Subordination der Organe. (Zugleich ein Beitrag zum Descensus der Keimdrüsen der Säugetiere.) *Arch. f. d. ges. Psychol.*, 1924, **48**, 290-381.

Darlegung einer Rangordnung der tierischen Organsysteme nach ihrer ganzmachenden Funktion, ihrer Bedeutung für die Ganzheit des Organismus (Cuvier); stärkste Ordnungsausprägung innerhalb des Zentralnervensystemes. Im polaren Gegensatz zu diesem synthetischen Princip stehen desintegrierend, auf "Fort" pflanzung gerichtet, die Generationsorgane. Die Rangordnung besonders im ZNS findet sinnlichen Ausdruck in den Lagebeziehungen der Teile zum Achsensystem des Wirbeltierkörpers: die höchsten Funktions-träger des ZNS gravitieren nach dem kranio-dorsalen Ort. Die Keimdrüsenverlagerung der Säugetiere vom Entstehungsorte nach dem abordalen Orte wird—nach Begründung künstlerischer Ausdruckstendenzen in den Organismen und Ablehnung des biologischen Utilitarismus—als Ausdruck ihrer "negativen Ganzheitsbezogenheit," ihrer polaren Entgegensetzung zur Funktion des ZNS, dargelegt. A. MÜLLER (Leipzig).

545. ADDISON, W. H. F., A Comparison of the Cerebellar Tracts in Three Teleosts. *J. Comp. Neurol.*, 1923, **36**, 1-36.

The cerebellum of fishes is very different in its afferent connections from that of mammals. While in mammals the cerebellar impulses are principally of a proprioceptive nature, in teleosts the impulses come also from visual, lateral-line and tactile centers, and possibly from gustatory and olfactory regions. It follows that the cerebellum, in its phylogenetic development, has lost its connection with external sense-organs and has become a more internal organ. The above are a few of the suggestions advanced by the author as a result of his work on fishes in which he finds, in different species, a considerable variation in the cerebellar tracts. R. H. WHEELER (Oregon).

546. LARSELL, O., The Cerebellum of the Frog. *J. Comp. Neurol.*, 1923, **36**, 89-112.

The fiber-tract connections with the cerebellum include a direct trigemino-cerebellar tract, vestibulo-cerebellar and direct vestibular

tracts, spino-cerebellar, tecto-cerebellar and bulbo-cerebellar tracts, besides brachium conjunctivum and cerebello-tegmental fibers. The trochlear nerve sends some uncrossed fibers directly into the cerebellum. These appear to become related to the mesencephalic V tract which also passes through the organ. R. H. WHEELER (Oregon).

547. DETWILER, S. R., Studies on the Retina. The Identity of the Developing Visual Cells in *Amblystoma* Larvæ as Revealed by Their Responses to Light. *J. Comp. Neurol.*, 1923, 36, 113-124.

cells suggested that the large conical-shaped elements are gradually transformed into typical rods and that these rod progenitors are in no way to be regarded as cones. (Detwiler and Laurens, 1921.) The results of these experiments are contrary to the conclusions advanced by Bernard (1903) and Cameron (1905, 1911), viz., that in the amphibian retina cones represent early stages in the formation of rods. Although in early stages all of the developing cells are cone-shaped, those which differentiate into rods not only present different structural features from those of the true cones, but they fail to execute the characteristic cone responses to photic stimulation, and behave as fully formed rods. R. H. WHEELER (Oregon).

548. DETWILER, S. R., Studies on the Retina. An Experimental Study of the Gecko Retina. *J. Comp. Neurol.*, 1923, 36, 125-143.

The retina of this nocturnal lizard (*Gecko swinhonis* Güenther) contains single and double rods and is entirely devoid of cones. Illumination of the retina by diffuse daylight brings about a migration of the epithelial pigment which averages 5.6μ , a result not in harmony with Garten's (1907). R. H. WHEELER (Oregon).

549. JOHNSTON, J. B., Further Contributions to the Study of the Evolution of the Forebrain. V. Survey of Forebrain Morphology. *J. Comp. Neurol.*, 1924, 36, 143-192.

Recent investigations have thrown a great deal of light upon the continuity of phylogenetic development of brain structure. New structures have not appeared, and although old structures have been modified, the process of evolution leading to the human brain has been one of gradual development of the elements inherent in the structures or areas laid down in very early vertebrate ancestors with

gradual shifting of emphasis, growth, or decline of this or that element, all under the influence of environment and changing habits. This is true of the following structures, of each of which we now have a fairly complete history: medial and lateral olfactory centers and hippocampal formation; amygdaloid complex; corpus striatum including putamen, globus pallidus, nucleus caudatus, bed of stria terminalis; general cortex or neopallium and the fiber systems connecting the telencephalon with lower centers. Future studies must be directed to the details of the differentiation of these structures and their modification in response to changes in environment, habits, and peripheral sense organs. R. H. WHEELER (Oregon).

550. LANGWORTHY, O. R., A Study of the Innervation of the Tongue Musculature with Particular Reference to the Proprioceptive Mechanism. *J. Comp. Neurol.*, 1924, 36, 273-298.

Neuromuscular spindles were demonstrated in the extrinsic tongue musculature of the cat, pig, opossum and rat. A physiological experiment with histological controls was devised in order to determine what nerve carried these afferent fibers. It was found that bilateral section of the lingual and glossopharyngeal nerves in the cat caused no apparent ataxia of the tongue. Normal neuromuscular spindles could be seen, subsequently, in the musculature. Complete paralysis of the tongue followed bilateral section of the N. hypoglossus. Then, after time had been allowed for degeneration, no neuromuscular spindles could be demonstrated in the muscle. Accordingly, the N. hypoglossus was assumed to carry proprioceptive fibers. Small sensory ganglia are found connected with the N. hypoglossus with fair constancy in the cat, dog, rabbit and other animals and very rarely in man. After cutting the hypoglossal nerve in the cat this ganglion shows changes of degeneration. But the cells of the ganglion do not seem numerous enough to account for all the neuromuscular spindles and as the ganglion is so inconstant further search must be made for sensory cells whose fibers run in the N. hypoglossus. R. H. WHEELER (Oregon).

551. HILTON, W. A., Afferent and Efferent Pathways in an Abdominal Segment of an Insect. *J. Comp. Neurol.*, 1924, 36, 299-308.

Working on larvæ of the beetle *Dendroides* the author draws the following general conclusions: Nerve fibers may be so small

as to be almost beyond the limit of visibility; in the use of this animal distinctions between fiber and fibril are not possible; there are two sets of receptor cells, both bipolar, one connected with muscle fibers and a much larger number related to hollow sense hairs. A large number of the dorsal and lateral sense hair cells send their processes to the ganglion of the segment but these turn at once toward cephalic regions. In case of receptor cells neurons do not seem to be fused, but there is a possibility of a number of effector cells combining to supply a single muscle fiber. Each ganglion is an automatic center but one-third of the fibers are ascending and descending. R. H. WHEELER (Oregon).

552. LARSELL, O., The Nucleus Isthmi of the Frog. *J. Comp. Neurol.*, 1924, **36**, 309-322.

The nucleus isthmi appears from its connections and relationships clearly to correspond, in the frog, to the medial geniculate body of mammals. R. H. WHEELER (Oregon).

553. JOHNSON, G. E., Giant Nerve Fibers in Crustaceans, with Special Reference to *Cambarus* and *Palaemonetes*. *J. Comp. Neurol.*, 1924, **36**, 323-374.

The median giant fibers of *Cambarus*, *Crangon*, and *Palaemonetes* terminate anteriorly in the brain, where they decussate and probably end in cell bodies. Posteriorly they end in the last abdominal ganglion. Large branches occur only near their terminations. They are in association with certain efferent fibers (the motor giant fibers) in the posterior part of the thorax and in the abdomen. The association is either one of contact between the fibers themselves or one attained by means of short branches extending from the one to the other. Segmental (lateral) giant fibers occur in each thoracic and abdominal ganglion. Each terminates posteriorly in a ganglion and anteriorly it passes through the next ganglion, terminating in contact with the side of a similar fiber which has its posterior terminations in that ganglion. The relations between the segmental giant fibers are those of contact with short blunt branches in the case of *Cambarus* and of partial fusion of the anterior end of one with the side of the other in *Palaemonetes* and *Crangon*. These associations differ strikingly from the synapse as commonly described. The relationship is not that of a nerve net. It forms, therefore, a strikingly unique alliance between neurons. It is suggested that contact and fusion

may be only differences in degree of association of neurons and that it would not be impossible to have both in the synapse. R. H. WHEELER (Oregon).

554. GRAY, P. A., and TURNER, E. L., The Motor Cortex of the Opossum. *J. Comp. Neurol.*, 1924, 36, 375-386.

On the relatively simple and primitive forebrain of *Didelphys virginiana* (9 cases) the authors applied a current from an inductorium driven by two dry cells. The animal was suspended so that the head, limbs and tail hung freely. Tests were made with a unipolar platinum electrode (bipolar electrode used in one case) 15 minutes after operation. A systematic search over the entire surface of the cortex has thus far failed to reveal any center for hind-leg or tail movements. This seems to be in accord with Cunningham (1898), but Herrick and Vogts have described a center for hind-leg movements. The present investigation is confirmed by Rogers (1923), and by histological examinations of the pyramidal tract. Maps are presented. R. H. WHEELER (Oregon).

556. TURNER, E. L., The Pyramidal Tract of the Virginia Opossum (*Didelphys virginiana*). *J. Comp. Neurol.*, 1924, 36, 387-398.

The same animals used as in Gray and Turner (375-386), four of which were operated upon aseptically, and after localization, the motor area was extirpated and the animals allowed to live a sufficient time for degeneration to take place. The corticospinal tract of the opossum occupies a position similar to that found in the other mammalian orders in the upper part of its course. The decussation of this tract in the lower part of the medulla seems to be complete. There is a center for fore limb, head and neck movements in the cortex, but no center for the hind limbs and tail. This fact, together with the lack of degeneration below the decussation and the appearance of contractures where the striatal body had been irritated, suggests that the hind-limb center is located at some level below the cortex. Possibly there is a synapse in the corticospinal system at this level. There are fibers here which turn laterally and probably make connections in the gray matter. Possibly unmyelinated fibers are present, forming no compact tract, and are too scattered to be defined by the Cajal and Ranson silver stains. R. H. WHEELER (Oregon).

557. ALLEN, W. F., Distribution of the Fibers Originating from the Different Basal Cerebellar Nuclei. *J. Comp. Neurol.*, 1924, 36, 399-440.

This is a continuation of the author's work on the central visceral system of the guinea pig with special attention paid to the intermediate and basal nuclear masses. R. H. WHEELER (Oregon).

558. DART, R. A., Some Notes on the Double Innervation of Mesodermal Muscle. *J. Comp. Neurol.*, 1924, 36, 441-494.

The double innervation (somatic and sympathetic) of striated muscle is vindicated by all lines of inquiry—anatomical, physiological, clinical and experimental. The sympathetic nerves in mesodermal muscle are both sensory and motor. There are intrafusal muscle fibers of muscle spindles and these, also, are doubly innervated, one of the fibers being the coarsely myelinated somatic sensory nerve fiber and the other being a finely myelinated sympathetic nerve fiber. The author believes that muscular tonus is fundamentally sympathetic in its origin and that the "stair case" phenomenon may be due to a summation of tonus. He also associates the sympathetic innervation of voluntary muscles with the alleged protopathic system. The fact of double innervation has not received the attention which it deserves. It may mean a new conception of the physiology of the voluntary muscle. It is also part of a phylogenetic issue of wide application. The sympathetic apparatus could not possibly have been derived from the segmented system phylogenetically and it is not so derived ontogenetically. (This is an interesting and highly suggestive discussion with possibly some important bearings on the neurological concepts interpretive of behavior.) R. H. WHEELER (Oregon).

559. HAMMETT, F. S., Studies of the Thyroid Apparatus. XX. The Effect of Thyroparathyroidectomy and Parathyroidectomy at 75 Days of Age on the Growth of the Brain and Spinal Cord of Male and Female Albino Rats. *J. Comp. Neurol.*, 1924, 37, 15-30.

Sex and age are factors of importance in the determination of the type and degree of response in growth of the brain and cord to thyroid and parathyroid deficiency. The brain is more dependent upon thyroid function for its normal quantitative growth and qualitative differentiation than is the cord. This difference is interpreted

primarily on the basis of the relative time of appearance of the spinal cord, thyroid gland and brain during the course of phylogenetic evolution. It is secondarily interpreted by the differences in relative dependency of cytoplasmic and lipoid metabolism on thyroid function. The central nervous system is more resistant to the toxemia of parathyroid deficiency than is the body as a whole. R. H. WHEELER (Oregon).

560. NICHOLSON, H., On the Presence of Ganglion Cells in the Third and Sixth Nerves of Man. *J. Comp. Neurol.*, 1924, 37, 31-36.

Ganglion cells, evidently sensory in nature, are demonstrated on the root of the third nerve of a full-time foetus, confirming Thomsen (1887). A ganglion is also found on the trunk of the sixth nerve, thus explaining why Sherrington and Tozier (1910) found sound fibers in the external rectus (monkey, cat, rabbit), upon intracranial severance of the sixth nerve. R. H. WHEELER (Oregon).

561. COGHILL, G. E., Correlated Anatomical and Physiological Studies of the Growth of the Nervous System in Amphibia. III. The Floor Plate of Amblystoma. *J. Comp. Neurol.*, 1924, 37, 37-70.

The beginning of the response to touch, marked by movement away from the stimulus, is correlated with and dependent upon the nervous function of floor-plate cells, in the region of the fifth and adjacent myotomes and at the levels of the roots of the fifth and seventh cranial nerves. The development of the behavior pattern up to swimming is distinctly correlated with the further development of this commissure, which is formed exclusively of fibers arising from cells in and immediately adjacent to the floor plate. Nerve cells grow and function at the same time and the growth of specific neurons is correlated with definite elaboration of the behavior pattern. The synapse in its earlier functional condition occurs between loose brush-like endings of the fine spiral-pointed terminals that are structurally adapted to motility. R. H. WHEELER (Oregon).

562. HARRISON, R. G., Neuroblast Versus Sheath Cell in the Development of Peripheral Nerves. *J. Comp. Neurol.*, 1924, 37, 123-206.

The sheath cells have nothing to do with the formation of the axone, and the ganglion cell is the sole essential factor in its forma-

tion. The sheath cells are not mesodermal, but arise for the most part from the ganglion crest in connection with the spinal ganglia. Some arise later directly from the medullary cord by emigration along the ventral roots. The sheath cells are to be regarded as the neuroglia of the peripheral nerves. R. H. WHEELER (Oregon).

563. GRAY, P. A., The Cortical Lamination Pattern of the Opossum, *Didelphys virginiana*. *J. Comp. Neurol.*, 1924, 37, 221-264.

The cortical lamination pattern is described in detail. Among the author's conclusions is the statement that the opossum is an exception to the generalization that the "motor" cortex is agranular in type. R. H. WHEELER (Oregon).

564. ROGERS, F. T., An Experimental Study of the Cerebral Physiology of the Virginian Opossum. *J. Comp. Neurol.*, 1924, 37, 265-316.

Extirpation of the excitable cortex without traumatism of the corpus striatum is followed by weakness of the contralateral fore leg and difficulty in using the hand in climbing and grasping. These latter effects are temporary and disappear after a few days. The weakness persists for a longer time. Destruction of the excitable cortex and the underlying corpus striatum of one hemisphere leads to profound paralysis of the opposite fore arm and hand. In walking this leg may drag on the floor, the fingers are in state of persistent flexion and ulcers appear on the knuckles as a result of erosion. The animal is unable to climb. There is distortion of the head laterally so that the animal walks in circles. When put in forced positions, the animal is unable to use the leg and foot to prevent falling. Electrical stimulation of the corpus striatum fourteen days after complete destruction of the excitable cortex was followed by elevation of the head and extension of both fore legs. This fact, considered with that of the marked paralysis that follows the destruction of one corpus striatum, seems to indicate that the corpus striatum has motor functions particularly related, in this animal, to the muscles of the neck, shoulder, and fore legs. Since complete removal of both hemispheres is not marked by definite muscular paralysis of the spastic type, the motor disturbances following a unilateral lesion of the corpus striatum must be due to a loss of the balanced control normally exerted by the two hemispheres. Although reflex responses to olfactory, cutaneous and visceral stimuli may be elicited in the

absence of the general cortex, the normal reactions to light and sound are dependent upon cortical activity. Unilateral destruction of the occipital cortex with minimal damage to the thalamus is followed by blindness of the contralateral eye and no observable disturbance of vision of the ipsilateral eye. There is no hemianopsia such as follows similar cortical lesions of the higher animals. After a unilateral lesion of the temporoparietal cortex, no defects of behavior or loss of ability to respond to light, sound, or cutaneous stimuli could be detected. R. H. WHEELER (Oregon).

565. HERRICK, C. J., The Nucleus Olfactorius Anterior of the Opossum. *J. Comp. Neurol.*, 1924, 37, 317-359.

Cerebral centers from the nucleus olfactorius anterior to the hippocampus become progressively more highly elaborated, suggesting that in the development of the brain we have a collection of pictures of histological patterns in which there is in all cases a strong olfactory component and to which other functional systems are added in varying degrees of complexity. The specific nucleus in question is described in detail. R. H. WHEELER (Oregon).

566. CARPENTER, F. W., Intramuscular Nerve Endings of Sensory Type in the Small Intestine, with a Consideration of Their Probable Function. *J. Comp. Neurol.*, 1924, 37, 439-454.

A highly suggestive and important paper bearing on problems of sensory response by way of the automatic nervous system. Intramuscular nerve endings of sensory type occur in the wall of the dog's small intestine in the form of what appear to be arborizations. These may be the receptive terminals for tonic and regulatory reflexes or for peristaltic reflexes. They may, however, initiate through adequate stimulation nervous impulses arousing in consciousness the sensation of pain. This latter hypothesis is regarded by the author as the most plausible in the light of physiological evidence, reviewed in the text. R. H. WHEELER (Oregon).

567. DETWILER, S. R., Studies on the Retina. Observations on the Rods of Nocturnal Mammals. *J. Comp. Neurol.*, 1924, 37, 481-492.

The material consisted of three light adapted and three dark adapted eyes of field mice and of two light adapted and two dark

adapted eyes of the bat. These retinae possess very slender cylindrical rods, with no evidence of cones. The rods do not show any positional changes in response to photic stimulation. The epithelial pigment is scanty in amount and fails to show any migration under the influence of light. Hence photomechanical changes in the mammalian visual cells and retinal pigment are very slight, if they occur at all. These phenomena, which take place so extensively in the lower vertebrates, apparently cannot be included as essential factors in any theory of vision or as participating in retinal adaptation in higher animals. Nevertheless statements to the contrary still appear in modern textbooks of anatomy and physiology. R. H. WHEELER (Oregon).

568. ALLEN, W. F., Localization in the Ganglion Semilunare of the Cat. *J. Comp. Neurol.*, 1924, **38**, 1-26.

Evidence goes to show that there are two separate and distinct ganglia in the ganglion semilunare of the cat, one the ophthalmic maxillary and the other the mandibular. If the situation in human beings is the same it has a clinical significance, for the mandibular ganglion can be destroyed without injury to the ophthalmic or the latter's motor root. Thus, in case of trifacial neuralgia involving the nervus mandibularis, the ganglion can be destroyed eliminating the pain without destroying the eyelid reflex. R. H. WHEELER (Oregon).

569. CRAIGIE, E. H., Changes in Vascularity in the Brain Stem and Cerebellum of the Albino Rat Between Birth and Maturity. *J. Comp. Neurol.*, 1924, **38**, 27-48.

A continuation of work published in Vols. 31 and 33 of this JOURNAL. Quantitatively the vascularity of the brain stem and cerebellum is much lower at birth than at maturity. The relative vascularity of centers within these parts does not differ at birth in the way it does in the adult. During the development of motor activity (second 5 days) vascularity increases. The rate of this increase reaches its peak from the 10th to 21st day. At this time the differences in vascularity of various centers characteristic of the adult become established. Vascular richness is related to functional activity and the latter requires a greater blood supply than processes of growth. R. H. WHEELER (Oregon).

570. LANGWORTHY, O. R., A Physiological Study of the Reactions of Young Decerebrate Animals. *Am. J. of Physiol.*, 1924, 69, 254-264.

Weed previously pointed out that kittens when decerebrated during the first few days of life as a rule show active reflexes and a tendency toward prolonged progressive movements. He also stated that decerebration of slightly older animals of the same species is followed by extensor rigidity, while active reflexes and progressive movements are very rare in these older animals. The present study extends the work of Weed by using, in addition to kittens, young rabbits immaturely delivered and young guinea pigs so maturely born that they were almost able to take care of themselves. The younger rabbits exhibited tremendous activity and prolonged progressive movements, which were often spontaneously initiated. Decerebrate rigidity was not manifested in these younger animals, but appeared in the older ones, where progressive movements are very rare. Rigidity begins to appear in such animals about the time they are able to support themselves on their legs. The guinea pigs, which were more mature at birth, with one exception, showed decerebrate rigidity and little tendency toward progressive movement. M. J. ZIGLER (Wellesley).

571. LAUGHTON, N. B., Studies on the Nervous Regulation of Progression in Mammals. *Amer. J. of Physiol.*, 1924, 70, 358-384.

The coördinated movements of progression in the cat and dog cannot be accomplished unless the caudal two-thirds of the thalamus is intact. In the rabbit the cephalic two-thirds of the pontine region takes care of progression. The cerebellum is not essential to progression in the rabbit. Marked rigidity did not inhibit progression in any of these animals. Coördinated progression movements could not be obtained from decapitated animals. M. J. ZIGLER (Wellesley).

572. ERLANGER, J., and GASSER, H. S., The Compound Nature of the Action Current of Nerve as Disclosed by the Cathode Ray Oscillograph. *Amer. J. of Physiol.*, 1924, 70, 624-666. M. J. ZIGLER (Wellesley).

573. NEWTON, F. C., Quantitative Measurements of the Excitability of the Central Nervous System After Thyroidectomy and Thymectomy. *Amer. J. of Physiol.*, 1924, 71, 12-18.

Total extirpation of the thyroid and thymus glands in rabbits leads to a diminished excitability of the central nervous system. This is indicated by a marked reduction in susceptibility of the respiratory center to rise in temperature. M. J. ZIGLER (Wellesley).

574. MORGULIS, S., The Effect of Environmental Temperature on Metabolism. *Amer. J. of Physiol.*, 1924, 71, 49-59.

The general finding of these extensive experiments is that changes in temperature do not occasion changes in metabolic activity of the tissue cells, excepting in so far as low temperatures may induce shivering through external stimulation and high temperatures a state of heightened muscular tonicity, which is also induced by peripheral stimulation. M. J. ZIGLER (Wellesley).

575. MCCOUCH, G. P., The Relation of the Pyramidal Tract to Spinal Shock. *Amer. J. of Physiol.*, 1924, 71, 137-152.
M. J. ZIGLER (Wellesley).

3. SENSATION AND PERCEPTION

576. QUASEBARTH, K., Zeitschätzung und Zeitauffassung Optisch und Akustisch Ausgefüllter Intervalle. *Arch. f. d. ges. Psychol.*, 1924, 49, 379-432.

Es wurde die Dauer zweier optischer bzw. akustischer Reize von gleicher Qualität und Intensität beurteilt (Ruhender Lichtpunkt und Ton einer Mikrophonplatte). Normalzeiten (NZ) von 2-8 sec. Es ergab sich optisch Überschätzung, akustisch bei NZ von 2 sec Unterschätzung, bei grösseren NZ Überschätzung der variablen Zeit. Die phänomenologischen Probleme waren: Wo liegt die Grenze des unmittelbaren Dauerbewusstseins? und: Ist Dauer oder Sukzession das Wesentliche bei der Zeitauffassung? Die *Einstellung* zur Erfassung der Dauer *mit Aufmerksamkeitsspannung* behauptet das Feld bei den optischen Versuchen. Sie setzt jene Überschätzungstendenz. Bei den akustischen NZ von 2 sec implizierte die *Einstellung ohne Aufmerksamkeitsspannung* ein Wenigerbeachten der Zeit und hiermit Unterschätzung. Die Sukzession ist wohl die *notwendige*, aber keineswegs die *hinreichende* Bedingung für das Erfassen der Dauer,

wie namentlich die langen Zeiten zeigten. Es scheint noch ein Rückwärtsgewandtsein, eine Beziehung auf den Anfang notwendig zu sein. Die Einheitlichkeit des Dauererlebens schwand optisch bei 6 sec, Akustisch bei 5 sec NZ. K. QUASEBARTH.

577. KIESOW, F., Zur Frage nach der Gültigkeit des Weber'schen Gesetzes im Gebiet der Tastempfindungen. *Arch. f. d. ges. Psychol.*, 1924, 47, 1-13.

Die vorliegende Untersuchung bildet eine Fortsetzung derjenigen, über die schon in B. 43 des Arch. 1923 (S. 11-23) berichtet wurde. Die Versuche wurden unter sonst gleichen Bedingungen auf der Volarseite des linken Unterarmes, unweit der Ellenbeuge, ausgeführt, d.h. auf einer Hautstelle von geringer Dichte der Tastpunkte. Alle untersuchten Tastpunkte waren isolierte Haarpunkte. Die Untersuchung führte gleichfalls zu einer Bestätigung des Weberschen Gesetzes. Der Verfasser tritt damit der Ansicht Hansen's entgegen, der die Ergebnisse Stratton's auf die Ausbreitung der Deformation auf benachbarte Tastorgane zurückzuführen sucht. Nach dem Verf. handelt es sich bei den vorliegenden Versuchen (Dr. Gatti) wie bei denjenigen von Prof. Stratton um Intensitätsänderungen des Reizes. F. KIESOW (Turin).

578. NAGEL, R., Die Kontrolle der Konstanz einer heterochromen Helligkeitsvergleichung, insbesondere an der Hand des Korrespondenzsatzes für Äquivalenzwerte. *Arch. f. d. ges. Psychol.*, 1924, 47, 143-218.

Zum Verständnis der quantitativen Ergebnisse gehört der Wirth'sche Begriff der "Korrespondenz" zweier vollständiger Reihen mit verschiedener Reizlage des konstanzen "Hauptreizes" H, bei denen der Hauptreiz der einen Reihe mit dem berechneten Äquivalenzwert der anderen übereinstimmt. Beide Reihen korrespondieren, wenn auch der zweite Äquivalenzwert mit dem Hauptwert der anderen Reihe zusammen fällt. Eine nicht rein zufällige Differenz ist das Doppelte eines Fehlers in der Bestimmung des Äquivalenzwertes. (Wirth, *Psychophysik*, S. 246 und *Spezielle Psychophysische Massmethoden (Abderhaldens Handbuch*, 4. Lieferung, S. 272). Wenn die Reihen mit verschiedener Lage des H vergleichbar sein sollen, müssen sie mit zeitlicher Untermischung ihrer Einzelversuche gleichzeitig abgeleitet werden. Da hierbei die Äquivalenzwerte noch unbekannt sind, können die Abweichungen von der Korrespondenz nur interpolatorisch ermittelt werden, indem

man ein passendes System vollständiger Reihen mit systematisch abgestuften Hauptwerten gleichzeitig ableitet. Nagel untersuchte mit zwei Vpn. zum erstenmal ein solches System interpolierter Korrespondenzen für die heterochrome Photometrierung einer roten Pigmentscheibe, die auf einem Farbenkreisel neben Grau in einem Dunkelkasten 260 σ lang beleuchtet wurde. Vorversuche über die ungefähre Lage der Äquivalenzwerte liessen die roten bzw. grauen Hauptreize beider Reizlagen so abstufen, dass für beide Vpn. zusammen insgesamt 20 Korrespondenzen interpoliert werden konnten, deren mittlere Diskrepanz -0.0012 ± 0.0011 und $+0.0024 \pm 0.0015$ bei Vp. B. und N. als zufällig betrachtet werden kann. Diese gute Korrespondenz lässt die Berechnung der Äquivalenzwerte aus den Reizwerten (ohne Transformation nach einer psychophysischen Hypothese) nach den Spearman-Wirth'schen Formeln gerechtfertigt erscheinen, und zeigt vor allem die innere Einheitlichkeit des psychologischen Prozesses der geübten heterochromen Photometrierung, die im ersten Teil der Arbeit qualitativ analysierend gegen verschiedene Einwände, insbesondere Sydney Langfeld's verteidigt wird. W. WIRTH (Leipzig).

579. LÖWI, M., Schwellenuntersuchungen. Theorie und Experiment. *Arch. f. d. ges. Psychol.*, 1924, 48, 1-73.

Das Schwellenerlebnis ist geknüpft an die *Aussage* der Versuchspersonen. Es liegt also nur vor, sofern es *gewusst* wird. Die übliche Errechnung der Schwellenwerte beachtet dies nicht: Die Ausdrücke "kleiner" und "grösser" u. s. w. bedeuten keine Urteilsausdrücke, da diese im Denken dauerndem Wechsel unterliegen. Die methodische Beziehung von Aussage auf Aufgabe würdigt den Augenblickscharakter des Schwellenerlebnisses: Die Vp. muss *wissen*, einer bestimmten Aufgabe "noch nicht," "nicht mehr" oder "eben gerade" zu genügen. Auch beim *Verfehlen* der Aufgabe besteht Erleben, bestimmbar durch den Begriff "Aufgabenwechsel." Im "Optimalerlebnis" wird der Aufgabe voll genügt. Mit Beziehung hierauf experimentelle Nachweise in notwendiger Verbindung mit theoretischer Analyse. M. LÖWI (Breslau).

580. PAULI, R., und WENZL, A., Über Farbenempfindungen bei intermittierendem farblosem Lichte. *Arch. f. d. ges. Psychol.*, 1924, 48, 470-484.

Die Farbenscheinungen treten an rotierten Scheiben mit Schwarz-Weisssektoren innerhalb der Flimmerzeiten auf. (Fechner)

Sie wurden einer systematischen Untersuchung unterzogen unter Abänderung folgender Versuchsbedingungen, besonders an der Benhamscheibe: Umdrehungsgeschwindigkeit, Umdrehungsrichtung, Beobachtungsdauer, Beleuchtungsstärke, Netzhautstelle, Beschaffenheit der Schwarzsektoren nach Zahl, Grösse und Gestalt, Scheibendurchmesser. Auch farbige Sektoren (rot, grün besonders, dazu gelb, blau) fanden Verwendung. Hauptergebnisse: Bei wachsender Umdrehungsgeschwindigkeit treten nacheinander 3 verschiedenartige Erscheinungen auf: farbige Ringe, dann gesättigte Blau Gelbsektoren, endlich rote und grüne Flecken, kurz vor der Verschmelzung. Hohe Beleuchtungsstärke und indirektes Sehen heben die Erscheinungen auf. Eine Erklärung lässt sich geben unter Annahme eines resonanzähnlichen Verhaltens der Erregungsvorgänge, deren Trägheit für die einzelnen Farbqualitäten verschieden zu denken ist. R. PAULI (München).

581. WIRTH, W., Bedeutung und Gültigkeit des Fechner-Helmholtz'schen Satzes über negative Nachbilder. *Arch. f. d. ges. Psychol.*, 1924, 46, 125-187.

Verf. verteidigt sich hier namentlich gegen die Angriffe von Dittler und Orbeli, sowie von C. Hess, auf den vermeintlichen Wirth'schen Versuch, eine genaue Proportionalität des physikalischen Nachbildmasses zur reagierenden Reizintensität zu behaupten. Jene Autoren haben völlig übersehen, dass schon Wirth selbst in seiner Habilitationsschrift (1900) die relative Zunahme des Proportionalitätsfaktors nach unten hin als wesentlich erkannte und mit alten Beobachtungen *Hering's* in Zusammenhang brachte. In neuen Versuchen konnte Wirth jene untere "Hering'sche Abweichung" bei Herabsetzung der Gesamtbeleuchtung auch für das erste Nachbildstadium ca 1/5 sec. nach Aufhebung des ursächlichen Helligkeitskontrastes bestätigen, die er in Übereinstimmung mit C. Bühler's Ergebnissen über Adaptations-Einflüsse (1903) als eine Umstimmungserscheinung betrachtet. Bei Dittler und Hess bestand ferner eine Unklarheit über die physiologische Bedeutung des (genauen) F.-H.schen Satzes, den sie mit der direkten Proportionalität der Sinneserregung E zum Reiz x in eindeutige Verbindung bringen wollten. In Wirklichkeit wäre aber sogar die genaue Gültigkeit, die nach Helmholtz durch die Formel $f_1(x) = f_2(ax)$ ausgedrückt wird, mit den verschiedensten Beziehungen $E = f(x)$, insbesondere, wie schon G. E. Müller erkannte, auch mit der Formel $E = k \cdot \log x + C$, verträglich. W. WIRTH (Leipzig).

582. GOLDSCHMIDT, R. H., Grössenschwankungen gestaltfester, urbildverwandter Nachbilder und der Emmert'sche Satz (Mit Bemerkungen zur Logik der experimentaldeskriptiven Psychologie). *Arch. f. d. ges. Psychol.*, 1923, **44**, 51-131.

Nachbilder werden hinsichtlich ihrer Grösse (1) überhaupt, (2) bezüglich des Gestaltproblemcs, (3) bezüglich der eidetischen Anschauungsbilder untersucht. Emmerts Satz wird nach Experimentalkritik von literarischem Material definiert, wonach seine Bedeutung für die Eidetikerfrage Bedürfnis erweckt. Es ergibt sich eingeschränkte Gültigkeit für Nachbilder, überhaupt für subjektiv-optische Phänomene. Die Einschränkungen beruhen teilweise auf Diskrepanz zwischen scheinbarem und bulbärem Nachbildabstand. Sie fallen fort, wenn der scheinbare Nachbildabstand in Rechnung gezogen wird. Der so modifizierte Satz bewährt sich auch bei Diskussion eidetischer Anschauungsbilder. R. H. GOLDSCHMIDT (Münster).

583. GIESSLER, G. M., Zur Charakterisierung der phänomenalen Räume, insbesondere des Hörraumes. *Arch. f. d. ges. Psychol.*, 1923, **45**, 282-297.

Verf. unterscheidet primäre phänomenale Räume, den Sehraum und Druckraum, von sekundären phänomenalen, dem Hörraum, Temperaturraum, Riechraum u.s.w., und sucht nachzuweisen, dass die optisch-taktile Raumanschauung Modifikationen erleidet durch Reize anderer Modalitäten, sodass die auf letzteren beruhenden Raumanschauungen jener gegenüber eine gewisse Selbständigkeit erlangen. Als Vergleichsmomente fungieren einerseits die allgemeineren Lageeinstellungen des Körpers auf seine Umgehung und die Gesamtwirkung der jeweiligen Raumerfüllung auf die Beweglichkeit derselben, andererseits die objektive Ausgestaltung, nämlich Entfernung, Ausdehnung, Form und Gestalt und die Beschaffenheit eventueller Grenzflächen. Der Hörraum wird geschildert in seinem schwächeren Eingreifen in den Sehraum durch Schallreflexionen, sodann in seinem umfassenderen Übergreifen, bei heftigen gleichförmigen oder harmonischen Schallen zu gunsten der Ausgestaltung des Sehraumes, bei heftigen ungleichförmigen oder disharmonischen Schallen im Sinne der eigenen Verselbständigung. C. M. GIESSLER (Erfurt).

584. POPPELREUTER, Zur Psychologie und Pathologie der optischen Wahrnehmung. *Zeit. f. d. ges. Neurol. u. Psychol.*, **83**, 26-152.

Die Arbeit geht aus von einer bis ins einzelne durchgeführten Kritik eines Falles von "apperzeptiver Seelenblindheit," welchen Goldstein und Gelb 1920 aus dem Frankfurter Hirnverletzten = Lazarett mitgeteilt haben und an den sie eine Theorie der Seelenblindheit anschlossen. P. bestreitet, dass die periphere Sehfunktionsprüfung in diesem Falle ausreichend exakt durchgeführt sei, um zu differenzieren, "ob das Abnorme des Erlebens in dem zugrunde liegenden Sinnesinhalt oder aber in der Verarbeitung dieses Sinnesinhaltes gelegen ist." Insbesondere legt er grossen Wert auf eine sorgfältige Aufnahme des durch Hirnherde geschädigten *Gesichtsfeldes* mit besonderen Methoden, welche die Übergänge von dem cerebral blinden zu dem ungeschädigten Teil berücksichtigt. Ein zweites Kapitel berichtet über experimentelle Untersuchungen am Normalen bei denen durch entsprechende Vorrichtungen eine weitgehende Einengung des Gesichtsfeldes erzeugt wurde. Dabei ergibt sich, dass alle bei dem Fall von Goldstein und Gelb beschriebenen pathologischen Tatsachen—Leistungen ebenso wie Erlebnisse—sich auch beim Normalen künstlich hervorrufen lassen. P. findet weiterhin die gleichen Störungen bei einem Fall von Erkrankung der Netzhaut und stellt dann allen bisherigen Befunden einen Hirnverletzten gegenüber, bei dem nach seiner Meinung nachweislich agnostische und optisch-apraktische Symptome nachzuweisen sind. P. wendet sich weiterhin gegen die Anwendung der Psychologie der Gestalt auf das vorliegende psychopathologische Problem, wie sie von Goldstein und Gelb vorgenommen wurde. Er unterscheidet sieben Stufen der "Differenzierung" des Sehfeldes und entwickelt schliesslich auf grund dieser Unterscheidungen eine Lehre vom "Stufenabbau und Stufenaufbau des Sehsystems" mit Hilfe der pathologischen Befunde. Die Arbeit, welche sich wie vielfach betont wird, auf ein grosses Material stützt, enthält ausser dem hier in grossen Umrissen wiedergegebenen Gedankengang noch zahlreiche Erörterungen einschlägiger Nebenfragen; insbesondere verdienen die Ausführungen über das Lokalisationsproblem in der optischen Rinde erwähnt zu werden. W. MAYER-GROSS (Heidelberg).

585. DANFORTH, C. H., The Problem of Incidence in Color Blindness. *Amer. Nat.*, 1924, 38, 447-456.

The available data do not suffice to show conclusively that color blindness is a simple sex-linked trait, although they make it appear probable that such is the case. The number of color-blind females is in excess of expectations based on the theory of sex linkage and random mating. Several hypotheses which might account for this discrepancy are susceptible of adequate testing through the accumulation of critical data. It is suggested that subordinate groups exist, showing differential frequencies of color blindness. If such groups do exist and are of any considerable size, marriages within them might be wholly free from what is ordinarily classed as consanguinity without reducing appreciably the relative number of color-blind females. Other hypotheses are considered. R. H. WHEELER (Oregon).

586. STEWART, G. N., Color Phenomena Caused by Intermittent Stimulation with White Light. *Amer. J. of Physiol.*, 1924, 69, 337-353.

Presentation and theoretical discussion of the author's experimental finding that white light of a given intensity occasions subjective color sensations, which pass progressively from violet toward red, approximately in the order of the spectral color series, as the rate of intermission is progressively increased; and, moreover, that if the rate of intermission is kept constant while the intensity of the white light is varied, an increase of objective intensity occasions subjective hues tending progressively toward violet and a decrease of objective intensity causes a shift of hue toward the red end of the spectrum. Explanation of the color changes observable in rotating Benham's top is also offered. M. J. ZIGLER (Wellesley).

587. AMBERSON, W. R., Secondary Excitation in the Retina. *Amer. J. of Physiol.*, 1924, 69, 354-370.

A description of two related antopic effects—the "blue arc" and the "blue spike"—and the conditions under which they are observed. These phenomena are also studied in a pathological eye in which a paracentral scotoma lies across the retinal zone in which these phenomena appear; *i.e.*, between the fovea and the optic disc. The writer concludes that these effects are due to "a secondary stimulation of ganglion cells, or occasionally of their fibers, by the external

circuits of rhythmic nervous discharges passing along retinal fibers which originate from ganglion cells on the rod pathways in the region of primary stimulation," indicating that one nerve cell may communicate activity to another other than through a synaptic junction. M. J. ZIGLER (Wellesley).

588. MAXWELL, S. S., and PILZ, G. F., On the Relation of Labyrinthine and Retinal Excitations in the Rabbit. *Amer. J. of Physiol.*, 1924, 70, 118-121.

The total amount of rotation-nystagmus effect is less when young brown rabbits are rotated in the dark than when rotated in the light. Retinal stimulation is excluded during rotation in the dark; rotation in the light produces both retinal and labyrinthine stimulation, which combine to produce a greater total amount of rotation-nystagmus. A comparison of the rotation-nystagmus produced during the first with that produced during the twentieth period of rotation shows that the amount of reduction during these twenty periods is greater in rotation in the dark than in the light. M. J. ZIGLER (Wellesley).

4. FEELING AND EMOTION

589. NISSEN, T., Die Physiologie und Psychologie der Furcht in der Ilias. *Arch. f. d. ges. Psychol.*, 1924, 46, 70-97.

Auf einen Überblick über die bisherigen Versuche einer Darstellung der Homerischen Psychologie folgt eine Erörterung der Homerischen Terminologie des Furchtaffektes. Nachdem sodann der Sitz der Furchtaffekte (Zwerchfell, Herz, Brusthöhle, Thymós) behandelt und die Homerische Tierpsychologie herangezogen ist, werden die physiologischen Begleiterscheinungen der Furchtaffekte besprochen: Kälteschauer, Erblassen, Zittern, Zähneklappern, Herzklopfen, Lähmungsgefühl, Starrheit, Unsicherheit des Blickes, Haarausraufen, Aufspringen, Fallenlassen von Gegenständen, Ducken, Flucht; schliesslich noch Seufzen, Weinen und Verstummen. Auffallend ist bei Homer die Stärke der Affektäusserung bei der Furcht für andere. Was das Wesen der Furcht betrifft, so wird sie entweder selbst als Dämon gefasst oder sie erscheint als von den Göttern gewirkt. Zuletzt werden die in der Ilias vorkommenden Ursachen der Furcht (Kampf, Verwundung, Schläge, Bedrohung, Tiere, Naturgewalten) erörtert. T. NISSEN.

5. MOTOR PHENOMENA AND ACTION

590. KRESTNICOFF, Zur lehre von den grundprinzipien der geistigen vorgänge. *Arch. f. d. ges. Psychol.*, 1924, 49, 1-60.

Der Verfasser weist nach, dass der Sinneswahrnehmungsvorgang gemäss den Prinzipien und Gesetzen des Reflexes zu Stande kommt. Bei der Wahrnehmung bleiben das zentripetale und das zentrifugale "Psychon" (neue Bezeichnung gewisser vermuteter psychophysiologischer Elemente) von einander abgesondert, ebenso wie es bei dem zentripetalen und zentrifugalen Neuron im Reflexe der Fall ist. Die Organempfindungen liegen dem "Ichpsychon" zu Grunde, das den Zentralpunkt für sämtliche Bewusstseinsprozesse bildet. Hieraus folgen Erklärungsmöglichkeiten für den Schlaf- und Traummechanismus, für hypnotische, hysterische, sowie epileptische Dämmerungszustände ferner (bei Störungen des Perzeptivbogens) für den Mechanismus der Halluzinationen, Pseudohalluzinationen, Agnosien, Amnesien u.s.w., sowie bei Störungen der motorischen Wahrnehmung für die Paraphasie, Paragraphie, Apraxie u.s.w. Den Sinneswahrnehmungsvorgang bezeichnet der Verfasser als primäres Psychon, indem er auch die Existenz eines secundären-emotionalen Psychons zulässt, das den Grundgesetzen unterliegt, denen auch das primäre Psychon untergeordnet ist. KRESTNICOFF (Sofia).

591. KLOPPER, B., Das Problem der seelischen Hemmungen. *Arch. f. d. ges. Psychol.*, 1924, 47, 45-93.

Vorliegende Arbeit versucht, einen Ueberblick über die mannigfachen Formen des Hemmungsproblems in der modernen Psychologie zu geben, und prüft anhand das Hemmungsproblems die verschiedenen Richtungen der modernen Psychologie auf ihren psychologischen Gehalt. Die "Typenreihe" der gebräuchlichsten Hemmungsbegriffe wird nach ihrem psychologischen Ursprung u. Gehalt untersucht. Vier weitere Abschnitte bringen nach den bisherigen experimental-psychologischen u. psychoanalytischen Ergebnissen einige neue Beiträge zur Phänomenologie u. zur Theorie der seelischen Hemmungen. B. KLOPPER (Frankfurt).

592. STERZINGER, O., Über den Stand und die Entwicklung von Begabungen während der Gymnasialzeit. *Arch. f. d. ges. Psychol.*, 1924, 49, 93-178.

Zwei erste (10 bis 11 Lebensjahr) u. achte (18 bis 20 L.J.) Klassen des Realgymnasiums zu Graz zeigten keine Verschiedenheit

der sinnlichen Aufmerksamkeit (Bourdon-Whipple Test), anscheinend wegen Konstanz der Arbeitsrhythmen. Die abstrakten Aufgaben fallen der Oberklasse leichter. Das mechanische Gedächtnis ändert sich wenig, das logische fast nicht. Dagegen steigt das unmittelbare Behalten sinnvoller Worte, etwas auch das freie Wörtersagen. Auffällig wächst die Umstellungsleistung, das technische Verständnis, die Bewegungsgeschwindigkeit und die Druckkraft der Hand. Mit Ausnahme des Technischen und der Druckkraft korrelieren alle Leistungen mit den Zeugnisnoten. O. STERZINGER (Innsbruck).

593. HANDRICK, J., Zusammengesetzte Reaktionen mit Superposition komplexer psychischen Vorgänge. *Arch. f. d. ges. Psychol.*, 1923, 45, 83-143.

Die Verwirklichung eines von *Wundt* selbst erdachten, aber wohl vergeblichen Versuches, um die vielfach angegriffene Subtraktionsmethode für die Abtrennung von Teilzeiten höherer psychischer Vorgänge in irgend einer Form zu retten. Zunächst sollte die Teilzeit für die Subsumtion eines tachistoskopischen Wortes unter eine der drei Kategorien Substantiv, Adjektiv, Verbum ermittelt werden, indem man die Teilzeit der vorausgehenden Erkennung des Wortes als sinnvoll durch eine erste Handbewegung rechts (links) abgrenzte, auf die vollzogene Subsumtion aber erst mit einer zweiten Bewegung der anderen Hand reagierte. In zwei weiteren Gruppen wurde zuerst auf die Subsumtion, dann auf eine erste Assoziation und endlich zuerst auf eine erste Assoziation und dann auf eine zweite reagiert, wobei stets Erkennung und Subsumtion in der nämlichen Weise vorausgehen sollten. Der Vergleich mit einfachen Erkennungsreaktionen, die ebenso wie die übrigen Versuche systematisch kontrolliert wurden, ergab jedoch bereits bei Hinzufügung einer Subsumtionsreaktion eine Verkürzung der Erkennungsreaktion um ca 10%. Ebenso erschien die Subsumtions-Reaktion bei Hinzufügung der Assoziationsreaktion und die erste Ass. Reakt. Bei Hinzufügung einer zweiten immer mehr, bis ca 33% im Mittel, verkürzt. (Verf. gibt selbst zu, dass sich hieraus nicht direkt auf die Zeit der Erkennung u.s.w. schließen lasse, da die Reaktion bei Bereitschaft zu einer zweiten anders, z. B. weniger vorsichtig ausgeführt werden könne, als wenn sie die letzte ist.) Die allgemeine Verzögerung der zweiten Reaktion nach Topciu (*Wundt's Psychol. Stud.*, Bd. 10, S. 156) suchte Verf. bei seinen Berechnungen zu verwerten. W. WIRTH (Leipzig).

594. FORBES, A., CAMPBELL, C. J., and WILLIAMS, H. B., Electrical Records of Afferent Impulses from Muscular Receptors. *Amer. J. of Physiol.*, 1924, 69, 283-303.

Records, secured by a string galvanometer, of the action currents initiated by the so-called proprioceptor system of receptors. M. J. ZIGLER (Wellesley).

595. EDDY, N. B., The Action of Preparations of the Endocrine Glands upon the Work Done by Skeletal Muscle. *Amer. J. of Physiol.*, 1924, 69, 432-440.

Perfusion of the frog's gastrocnemius muscle by internal secretions of parathyroid, corpus luteum, anterior pituitary, thyroid, splenic and pancreatic substances, insulin and thyroxin decrease the work done, while perfusion by internal secretions of pineal, suprarenal, thymus and mammary substances, and secretin increase the work done. Ovarian, orchic, and posterior pituitary substances have no material effect on the work done. M. J. ZIGLER (Wellesley).

596. TUTTLE, W. W., The Effect of Adrenalin upon the Patellar Tendon Reflex. *Amer. J. of Physiol.*, 1924, 69, 446-454.

Three of nine human subjects to whom adrenalin was administered intramuscularly showed marked augmentation of the patellar reflex; the others were unaffected. The three positive cases showed a high sensitivity to adrenalin. It is inferred that adrenalin has a direct stimulating effect upon the sympathetic fibers to the skeletal muscles. M. J. ZIGLER (Wellesley).

597. CATTELL, M., and STILES, P. G., The Place of Fatigue in Striated Muscle: Evidence for Failure of Excitation Apart from Contraction. *Amer. J. of Physiol.*, 1924, 69, 645-653.

Experimental work upon the gastrocnemius muscle of the frog brings the authors to the conclusion that muscular fatigue "is not usually due to an exhaustion of the power of contraction, but to a failure of the process of excitation in consequence of some sharply localized change." M. J. ZIGLER (Wellesley).

598. HAFKESBRING, R., and COLLET, M. E., Day to Day Variation in Basal Metabolism of Women. *Amer. J. of Physiol.*, 1924, 70, 73-83.

Observations made upon two subjects daily over a period of four months indicate that basal metabolism is 5 per cent higher in cold

than in hot weather, and is low on the first or second day of menstruation and often throughout the period. Pulse rate shows no correlation either with temperature or with menstruation. M. J. ZIGLER (Wellesley).

599. BARLOW, O. W., Adrenalectomy and Its Relation to the Metabolism of the Cat. *Amer. J. of Physiol.*, 1924, 70, 453-464.

Experiments showing the effect of single and double adrenalectomy upon body weight, blood sugar, anal temperature, and oxygen consumption. M. J. ZIGLER (Wellesley).

6. ATTENTION, MEMORY AND THOUGHT

600. PAULI, R., Ein verbesserter Gedächtnisapparat. *Arch. f. d. ges. Psychol.*, 1924, 49, 89-92.

Der bekannte Lipmann-Marxsche Gedächtnisapparat ist ausgestaltet worden: Durch eine Schleifenvorrichtung können Reihen bis zu 60 Glieder benutzt werden, während bisher 20 das Höchstmass war. Eine Blendenscheibe, die mit messbar zu verstellenden Sektoren hinter dem Darbietungsspalt rotiert, erlaubt die Herstellung ganz kurzer Expositionszeiten (0.1 Sek. und weniger), verdeckt den störenden Ruck in senkrechter Richtung und ermöglicht rhythmische Darbietungsform, welche letztere auch durch Abänderung der Anschlagstifte gewährleistet wird. Die angeführten Abänderungen, die durch Abbildungen veranschaulicht sind, ermöglichen eine vielseitige Verwendbarkeit des Apparates, ohne dessen Volumen zu vergrößern oder seine Handlichkeit zu vermindern. Ausführung: Institutsmechaniker Mahler, München, Adalbertstr. 3. R. PAULI (München).

601. MEINTS, C., Die Anschauungen Meumanns über das zustimmende Urteil als Faktor der Willenshandlung. *Arch. f. d. ges. Psychol.*, 1923, 45, 350-371.

Die tiefdringende Untersuchung der intellektuellen Teilvorgänge des Willens sei das besondere Verdienst der Meumann'schen Willens-theorie. Seine Auffassung, dass die spezifische Eigenart der Willensvorgänge nicht auf begleitenden Tätigkeitsgefühlen (Wundt) beruhe, sondern auf der besonderen Struktur ihrer intellektuellen Bestand-

teile, sucht Verf. als richtig zu erweisen. Dagegen habe M. die Bedeutung der Gefühle für den Willen, insbesondere ihren Einfluss auf das zustimmende Urteil, zu gering eingeschätzt. Das letztere ist nicht ein rein intellektueller Vorgang, wie M. annimmt, sondern ein komplexes Gebilde, das immer gefühlsbedingt ist. Diese Einseitigkeit der Willenstheorie M.s ist bedingt durch seine ethische Grundanschauung, deren Einfluss auf seine Untersuchung des Willensproblems insbesondere auch in seiner Begriffsbestimmung des Willens nachgewiesen wird. C. MEINTS (Bonn).

602. PETERMANN, B., Bechterew's Theorie der Konzentrierung. Eine kritische Studie als Beitrag zur Analyse der Aufmerksamkeitsproblems. *Arch. f. d. ges. Psychol.*, 1924, 48, 82-99.

Der Begriff des Aufmerksamkeitsreflexes ist für B.s Psychoreflexologie von zentraler Bedeutung. Die Studie will nachweisen, das Bechterews Begriff zu eng ist, das er aus dem Associationsprincip nicht abgeleitet werden kann, sondern vielmehr—wie das Assoziationsprincip selbst—nur unter Bezugnahme auf die Tatsache des seelischen Lebens (der subjektiven Psychologie), von denen Bechterew nur scheinbar absieht, ausreichend bestimmt werden kann. B. PETERMANN (Kiel).

603. TROUET, S., Der Willensakt bei Wahlhandlungen. Eine experimentelle Untersuchung. *Arch. f. d. ges. Psychol.*, 1923, 45, 157-202.

Von der bekannteren Form der Willenshandlungen, deren Motivation, Wahl und Entscheidung sich auf vorwiegend intellektuelle Tatbestände gründet, ist eine zweite Art zu unterscheiden: emotionale Willenshandlungen. Bei diesen spielen intellektuelle Tatbestände eine geringe, oft minimale Rolle, Gefühle und Stimmungen, die motivierenden Charakter tragen, können so stark werden, dass eine Wahl und Entscheidung überflüssig gemacht wird und an deren Stelle als Ersatzfunktion ein Wechselspiel von Gefühlen tritt, sodass nur die Handlung als Ganzes eine Stellungnahme zu den Gegebenheiten kundgibt, sofern nicht das Ichbewusstsein (im ethischen Sinne) diese Gesetzmässigkeiten durchkreuzt. Die emotionalen Willenshandlungen weisen eine geringere Anzahl von einzelnen Phasen auf, sind also sozusagen mehr aus einem Guss. S. TROUET (Bonn).

604. MEUER, H., Experimentelle Beiträge zur Lehre vom Wortgedächtnis nach der Methode der Polyeidoskopie. *Arch. f. d. ges. Psychol.*, 1924, 47, 14-44.

Eine akustische Paralleluntersuchung zu der Arbeit Nikolais am nämlichen Institut mit optischem Material (dass Arch. Bd. 42, 1 u. 2 H.). Eine Reihe von einsilbigen Worten wurde vorgelesen und unter verschiedenen Bedingungen reproduziert. Verf. prüfte vor allem Kinder, aber mit Vergleichsversuchen an Erwachsenen, auf den Einfluss der Zahl der Worte, der Ermüdung, der Pausen, weiterer Wiederholungen und namentlich der *Zwischenzeit* bis zur zweiten Reproduktion nach einer ersten sofortigen. Bei 6 Reihen aus je 30 Worten mit verschiedenen langen Zeiträumen bis zur zweiten Reproduktion ergab sich z. B. als Mittel der Reproduktion bei

	sofort	30"	60"	5 h.	24 h.	4 T.	4 W.
11- bis 12-jährigen Kindern.....	6,8	4,2	3,2	3,3	3,3	2,5	1,4
15- bis 55-jährigen Erwachsenen.	6,8	4,3	4,1	3,6	3,8	2,4	2,7

W. WIRTH (Leipzig).

605. CROSLAND, H. R., An Investigation of Proofreaders' Illusions. *Univ. of Oregon Pub.*, 1924, 2, No. 6, p. 168.

Report of an intensive study of the proofreaders' illusions. Thirty subjects took part in the investigation and these varied in experience from the professional proofreader to students who were totally inexperienced. Familiar and unfamiliar material was used and the subjects worked under several different instructions at different times which emphasized speed or accuracy. From a statistical study of the results, the author makes the following conclusions, which, it will be noticed, have a practical as well as a theoretical value: 1. No person, even the most experienced, succeeded in reading proof with 100 per cent score for accuracy. 2. The readers, ranked from most accurate in a descending order, do not change positions greatly from series to series. 3. The general order from accuracy is Journalists, Typographers, Psychology Teachers, Journalism Students and Psychology Students. 4. Trained readers excelled untrained readers in the degree of accuracy attained, while the untrained excelled the trained in speed. 5. Accuracy instructions reduced the speed of reading very greatly and increased accuracy by a smaller degree; speed instructions increased the speed of reading very greatly and reduced accuracy by a smaller degree. Practiced readers excelled unpracticed readers in the matter of accuracy most under accuracy instructions and least

under speed instructions. 6. The proofreader errs more on a sheet containing few errors, relatively, than on a sheet containing a great many errors. 7. A negative correlation exists between the amount of time expended in reading and the score of inaccuracy earned. 8. The types of errors most frequently missed are indicated. 9. The proofreader tends to err most frequently on the extreme right-hand side of the page and in the bottom half of the page. 10. Rereading immediately is not profitable. 11. Familiarity of material and of technical terms did not lead to greater or less inaccuracy. 12. The results do not reveal evidence of learning which would give a curve approximating the typical learning curve. These results lead the author to believe that it would be possible to pick out persons who show skill or give promise of becoming skillful in the reading of proof. S. W. FERNBERGER (Pennsylvania).

7. SOCIAL FUNCTIONS OF THE INDIVIDUAL

606. McGRATH, M. C., A Study of the Moral Development of Children. *Psychol. Mono.*, 1923, 32, No. 2, pp. 161.

This volume, No. 7 of the Catholic University of America Studies in Psychology, is an account of the findings from a moral judgment questionnaire answered by about 4,000 individuals, ranging in age from six to eighteen and above. The tables give results by age and sex, and distinguish between children in various public school systems and children in Catholic (parochial) schools. The questionnaire presented numerous ethical problems in the form of stories, pictures, and direct questions. Written answers were required from the fifth grade up, the questionnaire being given like a group mental test. In lower grades individual oral questioning was resorted to. The questionnaire required about two hours to answer.

A wide range of ethical situations were presented. The reactions of different ages and groups are clearly presented in the text and over one hundred tables. The bearing of religious instruction on certain problems of conduct (*e.g.*, divorce, church attendance) is indicated. As measured by ability to give socially approved reactions to ethical problems, children grow in moral consciousness gradually, and without sudden acceleration at or just before adolescence, it is found. The gradual nature of moral development and its close dependence on general intellectual development are in fact strikingly shown in this study. Some of Dr. McGrath's "tests" might per-

haps be used in the Binet series, on the basis of her data as to percentages of "passes" at successive ages.

At least one of the tests indicates that the author is not in close touch with real life. It reads, "In most of our large cities there are theaters known as 'Burlesque Shows.' The main performances are open to men only. What is your opinion of this restriction?" Some of the pictures which Dr. McGrath asked children to interpret are enigmatic even to adults because of poor draughtsmanship. The inclusion of questions based on religious instruction (*e.g.*, "Why were you made?"), without differentiation of these from non-religious questions, is probably not desirable; it indicates certain results of such training but nothing regarding moral growth.

The author believes that her results indicate clearly the moral problems to which children are most keenly alive at various ages, and that the proper time for instruction in each special moral problem may be fixed thereby. However, Dr. McGrath's application of her results in a one-page outline for a course in moral instruction seems too far removed and abstracted from the life situations with which her tests deal to be of much service. Who will construct a moral conduct curriculum by the scientific methods which Bobbitt, Charters, and others are developing? This is a vital need, and studies such as Dr. McGrath's, although valuable in other ways, cannot take the place of a direct approach to the curriculum problem.

The author's position with regard to moral training is sound: "The morality of the young child assumes the concrete form of habits: abstract principles are still beyond its grasp. . . . This training (moral) must go on at all times and places to be effective. . . . The direct method should also be used. . . . The earnestness displayed by the children in writing the paper which formed the basis of this study reveals the interest they have in the vital things of life. . . . It is the inalienable right of every child to be trained to social conduct before he has the chance to err. Moral education should be primarily formative, not corrective." L. A. PECHSTEIN (University of Cincinnati).

607. WALLIS, W. D., *Mental Patterns in Relation to Culture*. *J. Abnorm. Psychol. and Soc. Psychol.*, 1924, 19, 179-185.

A pattern psychology would fill a great need of social psychology in providing a behavior pattern of the group with its related action and reaction, demonstrating that the psychology of the group is not a

total of the psychology of individuals composing the group. Mental patterns are found in every culture area which reflect the various phases of culture in a type of mind. Down through the history of civilization have come the story of change in mental patterns. To-day our modern social order reflects class or culture in mental patterns. Granting the existence of these patterns, however, no knowledge of separate parts of an individual mind is adequate without an understanding of the whole integrated mental pattern. The parts are interconnected and interdependent, and accordingly any change in one part reflects a corresponding change in the whole pattern. "No analytical knowledge of parts which are summed up will give the mental pattern, and without the pattern the psychologist will not be able to understand the part, for its significance depends upon its place in the complex. Such a pattern psychology of both individual and group will tell us more about the fundamental type of behavior than will any analytical study of the atomistic sort." E. F. SYMMES (Boston Psychopathic Hospital).

608. GAULT, R. H., Progress in Experiments on Tactual Interpretation of Oral Speech. *J. Abnorm. Psychol. and Soc. Psychol.*, 1924, 19, 155-160.

A very interesting report of the progress made in interpreting oral speech by tactual impressions. The writer, despite the difficulty in learning the quality of separate stimulations and the emerging of the tactual correlates of phonetic elements, is satisfied that it is possible to learn oral speech interpretation in this way. E. F. SYMMES (Boston Psychopathic Hospital).

609. ELDRIDGE, S., Instinct, Habit, and Intelligence in Social Life. *J. Abnorm. Psychol. and Soc. Psychol.*, 1924, 19, 142-154.

A discussion of the nature of instinct and its relation to habit and intelligence in social life. The writer examines and criticizes the position taken by various schools of psychology: first, the cultural theory of mental traits, wherein specific inborn tendencies are minimized or denied; second, the structural theory in which behavior is interpreted in terms of neural structure and functions; third, the instinct theory which lays less stress on intellectual and environmental factors and emphasizes innateness of specific instincts as primary determinants of human behavior in every stage of development. The conclusions drawn are developed by a fourth theory

termed "the middle of the road position," already taken by many psychologists, who "concede the reality of instinctive impulses and their importance for behavior, but insist also on the importance of habit, culture, and environmental factors generally." Even within this liberal interpretation there are vital differences as to the possibilities of socializing habit and instinct and utilizing them as functions through education. E. F. SYMMES (Boston Psychopathic Hospital).

610. RUNGE, K., Die Verletzung der persönlichen Freiheit, insbesondere auf psychologischem Wege. *Arch. f. d. ges. Psychol.*, 1924, 49, 245-282.

Ein Abschnitt aus der Inauguraldissertation des Verfassers über die persönliche Freiheit, ein Grundrecht der Reichsverfassung als Objekt strafrechtlichen Schutzes im geltenden und künftigen Reichsstrafrecht (Leipzig 1922 nicht veröffentlicht). Aus den Verletzungsmöglichkeiten durch physische und psychologische Einwirkungen werden Folgerungen für die Ausgestaltung und die Grenzen des Freiheitsschutzes, durch die staatliche Strafrechtsordnung abgeleitet. Nach dem Zustandekommen der "Willenshandlung" werden die unter dem Oberbegriff des Zwanges zusammenzufassenden Mittel betrachtet und auf ihre Eignung zu deliktischen Eingriffsmöglichkeiten in die Freiheit der Willensentschliessung oder die Freiheit der Willensbetätigung geprüft. Als wesentliche Unterarten dieses Zwanges kommen in Betracht: Gewalt, Drohung und List, wozu noch Betäubung, Suggestion und Hypnose treten. K. RUNGE.

611. KUPKY, O., Die religiöse Entwicklung von Jugendlichen, dargestellt auf grund ihrer literarischen Erzeugnisse. *Arch. f. d. ges. Psychol.*, 1924, 49, 1-88.

Das Kind hat noch keine Religion im prägnanten Sinne. Erst der Jugendliche entdeckt von sich aus, "spontan," den eigentlichen Sinn der religiösen Werte. Schon im ersten religiösen Eindruck am Beginn der Pubertätszeit ist die Religion "ganz" enthalten, voll entfaltet ist sie erst am Ende dieser Zeit. Nur in seltenen Fällen verläuft die Entwicklung kontinuierlich. Im Gegensatz zu gewissen Sekten begünstigen die Kirchen den kontinuierlichen Verlauf, doch auch kirchlichen Jugendlichen bleiben innere Kämpfe nicht erspart. Die Tagebücher zeigen, dass nach dem ersten religiösen Eindruck das in der Kindheit aufgenommene Glaubensgut überprüft wird. Zweifel stellen sich ein, die durch neue religiöse Erlebnisse immer wieder

überwunden werden. Mit der Bildung einer eigenen religiösen Überzeugung erreicht die Entwicklung einen gewissen Abschluss. O. KUPKY (Leipzig).

612. PAPPENHEIM, M., Kritische Untersuchungen zum Rasengang (ganga undir jartarmen) der Isländersagas. *Arch. f. d. ges. Psychol.*, 1924, 46, 97-124.

Die künstliche Begründung des Bruderschaftsverhältnisses erfolgt nach den Isländersagas in der Art, dass die sich Verbrüdernden unter einen aus der Erde ausgeschnittenen, mit den Enden festhaftenden Rasenstreifen treten, ihr Blut zur Erde träufeln lassen und mit ihr vermischen und einander die Übung der Blutrache eidlich geloben. Gegen eine mehrfach vertretene Ansicht ist daran festzuhalten, dass der Rasengang nicht ein Ritus der Eidesbestärkung ist, sondern zur Blutmischung gehört und mit ihr die Verbrüderung der zusammen im Mutterleibe Verweilenden versinnbildlicht. Anscheinend ist der merkwürdige Brauch an die Stelle eines älteren, nicht mehr verstandenen Fusspurzaubers getreten, dessen Verbrüderungswirkung durch das Träufelnlassen von Blut in die Fusspur eines anderen herbeigeführt wurde. Dass diesem älteren Brauche auch bei den Germanen einstmals ein Bluttrinken vorausgegangen ist, kann höchstens vermutet werden. M. PAPPENHEIM (Kiel).

613. HONECKER, M., Komik und Einstellung. Ein Beitrag zur Lehre von den Bedingungen des komischen Erlebnisses. *Arch. f. d. ges. Psychol.*, 1924, 47, 94-107.

Die Theorie von Theodor Lipps sei nicht im stande, alle Fälle von Komik aufzuklären. Man müsse vielmehr den Begriff der "Einstellung" zu Hilfe nehmen, d. h. "die durch das Erscheinende selbst oder durch die vorausnehmende Erwartung bedingten Meinungen bezüglich der weiterhin erlebbaren Beschaffenheiten des Gegebenen oder Kommenden." Nach dieser Theorie ergibt sich ein komischer Eindruck dann, "wenn ein (nicht interessebetonter) Gegenstand aus einer Einstellung, die aus antecipierender Erwartung oder aktueller Auffassung entsteht, in einer für den Sinn des Gegenstandes bedeutungsvollen Weise herausfällt, so freilich, dass durch dieses Herausfallen keine wichtigen Interessen des Erlebenden gestört werden." Die Theorie wird an einzelnen Arten der Komik und besonders am Witz dargelegt. M. HONECKER (Bonn).

8. SPECIAL MENTAL CONDITIONS

614. HULL, C. L., The Influence of Tobacco Smoking on Mental and Motor Efficiency. *Psychol. Mono.*, 1924, 33, No. 3.

This high grade experimental study from the Wisconsin laboratory reports a most thorough investigation made for the American Committee for the Study of the Tobacco Problem. This study is an outstanding contribution primarily because of Dr. Hull's success in devising a neutral control dose which could not be distinguished by the subject from the actual tobacco. Nineteen subjects were used, and twelve physiological and psychological functions were measured. Pipe smoking was the form investigated. Nine of the subjects were occasional smokers or total abstainers, but with a tolerance for tobacco. Ten of the subjects were habitual and heavy smokers. The effects of smoking were traced for the first hour and one-half after the termination of the smoking.

With habitual smokers, only three of the twelve forms of behavior investigated revealed an unmistakable influence of smoking. These are pulse, hand tremor (essentially physiological processes), and mental addition. The heart rate is stimulated, and hand tremor is increased. Addition shows a favorable effect where the subject is an adult and accustomed to the use of tobacco. On the other hand, rote learning and memory span probably are unfavorably affected by tobacco. Hull calls attention to the fact that in the first case old associative bonds are functioning, and in the second case new associative bonds are being formed. The other functions tested are rate of voluntary movements, muscular fatigue, rate and accuracy of discriminatory eye-hand reactions, rate of eye-voice reactions, based on old and on new associative bonds, and rate of learning nonsense material.

This monograph is ably written and is replete with illustrations, tables, and graphs. It includes an excellent summary of earlier investigations, together with many of their significant statistical findings. All in all, this is the foremost investigation in its field to date. L. A. PECHSTEIN (University of Cincinnati).

615. MORGAN, J. J. B., Hypnosis with Direct Psychoanalytic Statement and Suggestion in the Treatment of a Psychoneurotic of Low Intelligence. *J. Abnorm. Psychol. and Soc. Psychol.*, 1924, 19, 160-165.

Inasmuch as it has been shown that normal intelligence is required in order to conduct a psychoanalysis, the procedure of treating a psy-

choneurotic of low intelligence by hypnosis was determined upon in one very successful case. This treatment is not recommended for ordinary cases, but the writer felt it justified on the grounds that a person with a low intelligence "must have a boss" and his conduct is the result of authority imposed upon him. "If the authority has led to an improper emphasis concerning life's ideals and adjustments then surely the superimposition of greater authority so as to readjust these ideals is more sensible than trying to use a method of reasoning." E. F. SYMMES (Boston Psychopathic Hospital).

616. SHERMAN, M., Hallucinations in Children. *J. Abnorm. Psychol. and Soc. Psychol.*, 1924, 19, 165-171.

A rather unusual study was made of early developing schizophrenia in children, where the hallucinations appeared some time after the recognition by observers of mental difficulty. These hallucinations showed development through fairly definite stages: first, a state of conflict, then expression of this in vague images, recognized by the subject as pathological or unexplainable, and finally perfected images regarded as true perceptions and of real existence with accompanying indifference. The presence of the hallucinations appeared to offer means of relief either through justification of patient's behavior or a satisfaction of his wishes. E. F. SYMMES (Boston Psychopathic Hospital).

617. WILLEY, M. M., The Psychic Utility of Sleep. *J. Abnorm. Psychol. and Soc. Psychol.*, 1924, 19, 174-179.

Sleep as purely physiological in value is challenged in this article, which attempts to prove the psychic utility of sleep as an escape mechanism. The case studies cited range from a striking example of sleep as one child's device of escape from facing the violation of the moral code to the ordinary experiences of daily life where an unpleasant task leads to a desire of escape, followed by apathetic sensations which are antecedent to sleep. The writer even feels that "it is not at all improbable that the roots of the expression, 'You make me tired!' are in the desire to withdraw from the company of individuals whose conversation or personalities are conducive to boredom or irritation. The sequence is: boredom, the desire to escape, the unconscious urge to sleep, the expression of tiredness. The universal acceptance of this expression as a rebuke to individuals whose presence or conversation is consciously or unconsciously

annoying, testifies to the adequacy of this analysis." E. F. SYMMES (Boston Psychopathic Hospital).

618. ALLPORT, G. W., The Study of the Undivided Personality. *J. Abnorm. Psychol. and Soc. Psychol.*, 1924, 19, 132-142.

The analytic method employed thus far by investigators measuring personality traits is fallible because of the fact that the traits thus measured are isolated rather than combined into an integrated, undivided personality. "The way in which traits are joined together is as much a part of the personality as are the traits themselves. This form of combination, or form-quality, is irretrievably lost in any scheme for the analysis of personality. The form-quality being as it is an attribute of the entire integrated personality, is manifest in every act of the individual (so long as it is not a "dissociated act"); but certain behavior and certain products of behavior are more accessible to investigation than others. In practical life we gain a knowledge of personality without conscious reference to any of the signs by which the perception is mediated. A really thoroughgoing comprehension of personality entails a sympathetic understanding of the individual's driving interests and sentiments, and of the way in which these interests and sentiments are organized and are expressed in his habitual adjustments to the major problems of life. This understanding is gained through a kind of "empathy," the genetic nature of which is not entirely clear, but which undoubtedly enables us to experience sympathetically the form-quality in the personality of an associate, without obscuring our apprehension of his total personality by an undue emphasis upon single traits." E. F. SYMMES (Boston Psychopathic Hospital).

619. ANON., Two Interesting Dreams. *J. Abnorm. Psychol. and Soc. Psychol.*, 1924, 19, 171-174.

A problem is presented for the interpretation of two dreams, which the writer, a psychologist in general disagreement with the psychoanalytic school, comments upon as fitting into Freudian formulations except for one striking fact, that the "censorship" was much more relaxed in the near day-dream state of the second dream while the first occurred during profound slumber. E. F. SYMMES (Boston Psychopathic Hospital).

620. LUCKHARDT, A. B., and JOHNSTON, R. L., The Psychic Secretion of Gastric Juice under Hypnosis. *Amer. J. of Physiol.*, 1924, 70, 174-182.

In tests made upon a single subject ten minutes before and fifteen minutes after a test meal or the suggestion of a meal, it is found that gastric secretion is more prompt when the subject is under hypnosis than when in the normal state. The acidity of the gastric secretion is equally high and the quantity equally as copious when a test meal is merely suggested to the hypnotic subject as when the meal is actually ingested. The general conclusion of the study is that hypnotic sleep results in temporary removal of central inhibition from the gastric secretory mechanism. M. J. ZIGLER (Wellesley).

621. JOHNSTON, R. L., and WASHEIM, H., Gastric Secretion in Sleep. *Amer. J. of Physiol.*, 1924, 70, 247-253.

During preparation for sleep the acidity of gastric secretion shows a rise which continues for an hour or more after the onset of sleep, and reaches its maximum generally about the time that sleep is deepest. If the Ewald test meal is taken just before retiring sleep produces a considerable delay of emptying of the stomach, a marked rise in acidity, and a delay in the fall of gastric acidity. If no food is taken gastric acidity approaches that of the resting state in the course of two or three hours after the onset of sleep. M. J. ZIGLER (Wellesley).

9. NERVOUS AND MENTAL DISORDERS

622. BARKER, L. F., The Significance of Certain Factors for the Development of the Heredofamilial Diseases of the Nervous System. *Arch. of Neurol. and Psychiat.*, 1924, 3, 294-299.

A study in heredity dealing with consanguinity, race, endocrinopathies, toxins, infections, alcoholism, and Roentgen rays. W. P. McELROY (Boston Psychopathic Hospital).

623. LLOYD, J. H., and GRANT, F. C., Tumor of the Hypophysis. *Arch. of Neurol. and Psychiat.*, 1924, 3, 277-287.

Report of a case. W. P. McELROY (Boston Psychopathic Hospital).

10. INDIVIDUAL, RACIAL, AND SOCIAL PSYCHOLOGY

624. WHITEN, E. S., Self-Supporting Prisons. *J. Crim. Law and Crim.*, 1924, 15, 323-328.

A report on a program which provides for the selling and purchasing of prison-made goods among the prison systems of the states through the Association of Government Service. Such a program would make it possible for the prisons to be self-supporting and beneficial to the prisoners, without being inimical to the best interests of industries throughout the country. F. KNAPP (Boston Psychopathic Hospital).

625. WARNER, S. B., and BATES, S., Information Concerning Adult Male Criminals Which Should Be Published by Reformatories, Penitentiaries, and State Prisons. *J. Crim. Law and Crim.*, 1924, 15, 177-238.

Uniform methods of obtaining and recording statistics in reformatories, penitentiaries, and state prisons are needed for adequate knowledge of how criminal justice is being administered in this country as a whole. This report deals with the minimum amount of information which should be published by institutions as to prisoners. It includes twenty-six tables, each followed by a "short statement of the reasons why the particular table is important; the basis of the table, whether total prison population, admissions, or discharges; the method of obtaining the information, and instructions for making up the table." F. KNAPP (Boston Psychopathic Hospital).

626. MURCHISON, C., American White Criminal Intelligence. *J. Crim. Law and Crim.*, 1924, 15, 239-316.

"In 1915 the classic writers on the subject were agreed that criminals are largely mentally defective." This opinion "was certainly not built upon a solid foundation of collected facts." Data are given to show that the "criminal element of society . . . does not possess a lower average intelligence than the adult civil population." The author does not hold the conviction that criminals have more able minds than do the more conservative members of society. But he is convinced that great harm has been done by the propaganda which creates the impression that the criminal is feeble-minded. The problem of criminal intelligence cannot be discussed adequately with-

out due reference to geographical concomitants. The data obtained about white native-born men from training camps and prisons are presented in full at the end of the article. F. KNAPP (Boston Psychopathic Hospital).

627. SPECTOR, T., Some Fundamental Concepts of Hebrew Criminal Jurisprudence. *J. Crim. Law and Crim.*, 1924, 15, 317-328.

While there is no sovereign authority to enforce obedience to the Jewish law, it still receives homage from the bulk of the Jewish race. It is based on the Bible, especially the Five Books of Moses. The Christian world stigmatizes the Talmudic system as cruel, without good reason, for no other nation has such ample safeguards for the accused and the death penalties are more humane than most people realize. Illustrations are given of the rigid investigations before a man may be sentenced to death and of the way suffering is lessened in executing the penalty. F. KNAPP (Boston Psychopathic Hospital).

628. OLSON, H., CUMMINGS, H., and WIGMORE, J. H., The Loeb-Leopold Murder of Franks in Chicago, May 21, 1924. *J. Crim. Law and Crim.*, 1924, 15, 347-405.

A record of the case, divided into six parts and preceded by editorial comments. (A) Brief chronology of events from May 21 to September 10. (B) The events of the crime and its detection; a summary from a memorandum of the state's attorney. (C) The opinion of the experts for the defense, given in a joint summary report by Wm. A. White, Wm. J. Healy, Bernard Glueck, and Ralph Hamill. Leopold's phantasy life, defective judgment, repression of emotional life, abnormal urge towards activity and search of new sensations led to the conclusion that he represented a paranoid psychopathic personality. Loeb manifested a pathological divergence between his intellectual and emotional life; the latter being decidedly infantile. (D) The opinions of the experts called by the prosecution (H. T. Patrick, H. D. Singer, A. Church, and W. O. Krohn); excerpts from their answers in testifying. All agreed that there was no evidence of mental disease, functional or organic, and said that the phantasies described were not abnormal, and that there was evidence of definite emotional reactions. There was, however, evidence of a slowly growing criminal character. (E) The sentence of the judge, John R. Caverly. As the psychiatrist's findings were

deserving of legislative rather than judicial consideration, the court states that he ignored this material and was moved chiefly by the consideration of the age of the defendants. Also he feels that "life imprisonment . . . may well be the severer form of retribution and expiation." (F) Comments on the sentence from the legal profession, made by H. Olson, H. Cummings, and J. H. Wigmore. Mr. Olson felt that the prosecution should not have ignored the emotional defects of the defendants, that the only sound ground for failing to hang them was that they were emotional defectives, and that the psychiatrists were at fault in omitting the hereditary background and in making use of artifices that beclouded real issues. Mr. Cummings held that the penalty was quite properly fixed without reference to the reports of the psychiatrists, but that the delay was unfortunate. Mr. Wigmore concludes the article with comments on the judge's decision and on the reports of the psychiatrists for the defense. In the judge's sentence there were some apparently illogical statements, but the cardinal error was the ignoring the deterrence theory as the basis of criminal law. "The theories of the basis of penal law are reducible to four—Retribution, Reformation, Deterrence, and Prevention." Prevention is the concern of social measures rather than of the courts; retribution has long been discarded, and reformation is improbable in this case. Thus deterrence was the important consideration. Since the decision overlooking this, cases have been noted that show clearly that the remission of the extreme penalty here has already lessened the restraint on the outside class of potential homicides. The psychiatrists for the defense overlooked the fact that the modern penal law is not based on moral blame but on social self-defense. The fact that a crime is the natural and inevitable result of an individual's character does not justify legal indulgence, for such would offer impunity to the more dangerous criminals. Mr. Wigmore considers that it is time the public learn to discard false sympathy which is apt to arise on the first acceptance of the biopsychologic doctrine of determinism. F. KNAPP (Boston Psychopathic Hospital).

629. CUMMINGS, H. S., *The State vs. Harold Israel*. *J. Crim. Law and Crim.*, 1924, 15, 406-434.

In the statement made to the Superior Court for Fairfield County, Connecticut, Mr. Cummings, state's attorney, gives the reasons for his entering a nolle of a charge of a first degree murder in the case

of Harold Israel, accused of the murder of Father Dahme in Bridgeport on February 4, 1924. Feeling that "it is just as important for a state's attorney to use the great power of his office to protect the innocent as to convict the guilty," Mr. Cummings spent much time and effort investigating the apparently incriminating facts cited by the coroner. He tells in detail his methods and demonstrates clearly how the conclusion was reached that Israel was innocent. F. KNAPP (Boston Psychopathic Hospital).

630. MURCHISON, C., American White Criminal Intelligence. *J. Crim. Law and Crim.*, 1924, 15, 435-494.

This concludes the study begun in the last number. More data are given. In the summary the author says that in terms of Alpha scores the criminal group is superior to the white draft; criminals classified by types of crimes differ greatly in intelligence; recidivists tend to be more intelligent than first offenders; the criminal is less literate than was the American Army; the criminal group is relatively youthful; the criminal is religious; more criminals are single than married; there seems to be no significant seasonal distribution of criminal intelligence; and the length of incarceration does not decrease the ability to make a high score on the Alpha tests. F. KNAPP (Boston Psychopathic Hospital).

11. MENTAL DEVELOPMENT IN MAN

631. GUTMANN, M. J., Über Augenbewegungen der Neugeborenen und ihre theoretische Bedeutung. *Arch. f. d. ges. Psychol.*, 1924, 47.

Es gibt lichtscheue, indifferente und lichtfrohe Neugeborene. Das Zukneifen der Augen erfolgt *sofort* nach der Geburt (nicht erst am 10 Tage nach Preyer). Die Verengerung der weiten Pupille erfolgt von Geburt an reflektorisch. Einige Neugeborene vermögen bereits in den ersten Tagen (das jüngste Kind war 2 Tage 5 Stunden alt) ein helles Objekt (Lampe) zu fixieren und ihre Augenmuskeln *koordiniert* zu gebrauchen, andere erst später. Es handelt sich um ein "Erlernen" des sicheren Gebrauchs der Augenmuskeln analog den übrigen Körpermuskeln. Die koordinierte Bewegungsmöglichkeit ist zu einem Zeitpunkt erreicht (4 Monate), in dem nach Flechsig's Untersuchungen der Markbildungsprozess an den gröberen Faserzügen des Gehirns als abgeschlossen betrachtet werden kann.

Bei weiblichen Früchten ist die Entwicklung vielfach weiter entwickelt als bei männlichen: Auch bei diesen Versuchen gaben die Mädchen die weitaus häufigeren positiven Befunde. M. J. GUTMANN.

632. MERRIMAN, C., The Intellectual Resemblance of Twins. *Psychol. Mono.*, 1924, 33, No. 5.

Three questions are raised and answered by this study: "(1) What is the effect of environment upon the amount of intellectual resemblance of twins? (2) Does the fact of twin origin and birth operate in any way to lower the intellectual level of a twin population? (3) What light do the psychological data throw upon the current biological belief that there are two distinct types of twins, fraternal and duplicate?" The first two questions are answered in harmony with the earlier findings of Thorndike, the third in disagreement with Thorndike. The data presented are superior to those of Thorndike in the number of cases studied (upwards of 200 pairs of twins in the present study), and in the type of mental tests employed (Stanford-Binet, Beta, N. I. T.).

(1) Environment is found to make no significant difference in the amount of twin resemblance. (2) Twins suffer no intellectual handicap, the mean and median I.Q. being practically the same as for the general population, the sexes failing to show significant differences in variability, etc. (3) The data show quite conclusively, according to the author, that there are two distinct types of twins. In support of this last conclusion, the following evidence is adduced: "In every case where like-sex pairs are compared with unlike-sex pairs, the correlation of the like-sex pairs is significantly higher. . . . When sibling data are compared with twin data, the correlations lie much nearer the unlike-sex pair twin data than to the like-sex pair data. . . . All the curves and curve fitting tests used in the study indicate clearly a difference between like- and unlike-sex pair twins. . . . The empirical study of verbal reports on 'similar pairs' tends strongly to show that curve differences are to be largely accounted for by the like-sex pairs that show great intellectual and physical similarity, and that presumably belong to the duplicate type." In spite of the author's inability "to devise any method of studying the curves or the scores that will certainly point out the duplicate pairs," this evidence seems convincing, when interpreted in the light of the usual biological assertion, that duplicate twins are always of the same sex, while fraternal twins may or may not be of the same sex. L. A. PECHSTEIN (University of Cincinnati).

633. STINCHFIELD, S. M., The Formulation and Standardization of a Series of Graded Speech Tests. *Psychol. Mono.*, 1923, 33, No. 2.

Herein is reported the successful completion of a long series of studies by the author on the subject of speech difficulties. Graded objective tests for children and adults, which correlate highly with a subjective speech rating, have been developed and tentatively standardized on 427 cases. The seven tests chosen consist of two articulation tests, and tests of rate in spontaneous speech, rate in oral reading, rate in silent reading, percentage of relevant words used in spontaneous speech, and vocabulary. The sentences used in the articulation tests were prepared in accordance with the standards set by the International Phonetic Association. After weighting each test to its optimum value, the team of tests gave a multiple correlation of .731 with the subjective rating, this being regarded by the author as unusually high. For diagnostic purposes the entire team of tests should be used, but the articulation tests alone have decided value as a short form. This research brings the study of speech defects definitely into line with the measurement movement, and furnishes a splendid diagnostic tool for teachers dealing with this problem. L. A. PECHSTEIN (University of Cincinnati).

634. FREYD, M., Personalities of the Socially and Mechanically Inclined. *Psychol. Mono.*, 1924, 33, No. 4.

Without assuming personality "types" of the sort the title of this monograph might imply, the author presents a method of differentiating "extremes" in personality, contrasting "men whose primary interest is social" with "men whose primary interest is in machines." The subjects were groups of salesmen and groups of engineering and mechanics students. For purposes of comparison, a short intelligence test, a group form of the Downey will-temperament tests, the Kent-Rosanoff free association test, a new test of "directed association," questionnaires on early personal history, vocational interests, avocational interests, likes and dislikes, beliefs, and a graphic rating scale for various traits were used. The results were used to give simple group comparisons, and in addition to this the intercorrelations of certain of the measures. Total scores were obtained in which the significant items for differentiation were given suitable weighting, these total scores clearly differentiating nearly all the members of the sales group from those of the mechanical group.

The interquartile ranges do not overlap; the overlapping of the entire distributions is less than one-fourth, "which may include all those individuals who are vocationally misplaced."

On the whole, men who prefer to handle or motivate human beings (salesmen), rather than to handle machines or inanimate objects, show greater social ability, credulity or suggestibility, adaptability, excitability, self-confidence, talkativeness, present-mindedness, and good nature, but show less tendency to be self-conscious, careful of details, inhibited and cautious, reticent, absent-minded and glum, and less ability to make fine coördinations and to give slow, painstaking, and accurate effort. The author suggests for later study the relationship between the psychological concepts of extroversion and introversion and the traits of the socially and mechanically inclined. The origin of some of the personality differences is definitely found in early environment, family history, maternal versus paternal influence, compensation for felt lacks, etc. L. A. PECHSTEIN (University of Cincinnati).

635. FREEMAN, F. N., A Scientific Study of Visual Education. *J. Educ. Res.*, 1924, 10, 375-385.

Critical discussion of the importance (too often overemphasized) of the use of motion pictures in education. S. W. FERNBERGER (Pennsylvania).

636. Terman, L. M., The Possibilities and Limitations of Training. *J. Educ. Res.*, 1924, 10, 335-343.

Program of a committee of the National Society for the Study of Education which proposes "measuring up our methods against our raw material in order to find what each contributes to our educational product." S. W. FERNBERGER (Pennsylvania).

637. Oates, D. W., The Nature and Validity of Subjective Estimates of Intelligence. *Forum of Ed.*, 1924, 2, 103-121.

Two hundred and seventy-six English secondary school boys were the subjects of an investigation which compared (1) Teachers' Estimates, (2) School Examinations, and (3) Group Intelligence Tests. The method of partial correlation shows that (1) and (2) have much in common that is not included in (3). The high reliability coefficient of teachers' estimates is produced chiefly by a common tendency to judge intelligence from actual school success.

The poor correlation between teachers' estimates and intelligence tests is attributed to the neglect of age factors, and the tendency of teachers in making judgments to be influenced by extraneous character traits. H. E. JONES (Columbia).

638. NEWCOMB, E., A Study of the Appreciation of Beauty in School Children. *Forum of Ed.*, 1924, 2, 1-14, 128-132.

Two thousand children, from seven through thirteen years of age, were asked to write fifteen-minute school compositions on "The most beautiful thing I have ever seen." The results are analyzed according to topics chosen, with tabulations of age, sex, race, and sectional differences. A tentative age scale for compositions is proposed, based on choice of subject, esthetic attention span, and mention of definite elements of beauty. H. E. JONES (Columbia).

639. RITCHIE, F. M., Some Effects of Prolonged Unvaried Mental Work. *Forum of Ed.*, 1924, 2, 48-61, 83-98.

Three subjects performed the Kraepelin multiplication test for ten hours, a rest of ten minutes being allowed after each two hours. Practice periods were given before and following each experiment. Although the experiment was repeated in one case until nearly sixty hours of practice had been obtained, it was evident that the limit of improvement was not reached. The author casts doubt upon much previous work in mental fatigue, in which a freedom from practice effect has been assumed. H. E. JONES (Columbia).

640. FREEMAN, F. N., and CARTER, T. M., A New Measure of the Carpal Bones and Its Relation to Physical and Mental Development. *J. Educ. Psychol.*, 1924, 15, 257-270.

This study, along the lines developed by Baldwin of measuring physiological development by the carpal bones of the wrist, carries the investigation farther in that it attempts to distinguish between size and stage of development, that is, to measure the distance which the individual has traveled along the road to maturity or precocity. The method used was to first measure the area of a quadrilateral made by drawing lines from fixed points in the wrist and calling the area the carpal quadrilateral. The sum of the areas of the projections of the carpal bones was then found and called the total ossification. The ration of the total ossification to the carpal quadrilateral is the final measure used in the study and is called the ossification

ratio. Reliability is determined by studies in sex differences. Results obtained do not indicate that rate of physical growth is correlated with the rate of mental growth. Chronological age then remains a better base for calculating brightness than physiological age would be, and the classification of children in schools remains a function of mental tests rather than a possible inference from physical measurements. J. D. WEINLAND (Lehigh).

641. PETERSON, J., Johnson's Measurement of Rate of Improvement Under Practice. *J. Educ. Psychol.*, 1924, 15, 271-275.

Peterson gives a different statistical treatment here of data published by O. J. Johnson on "A Study of the Relation Between Ability to Learn and Intelligence as Measured by Tests," *J. Educ. Psychol.*, 1923, 14, 540-544. Johnson concluded that brighter subjects improve faster than dull ones, while Peterson, from the same data, concludes the reverse. Johnson used as his measure the amount of work done in ten minutes; Peterson plots the data in terms of the time required to do a given amount of work. The study suggests that sometimes intelligence graded as superior may be found so because of greater practice, than the average, in the functions tested. If so, we are undoubtedly taking too little account in intelligence tests of the respective amount of practice in the functions involved by the different subjects. J. D. WEINLAND (Lehigh).

642. WALTERS, F. C., Language Handicap and the Stanford Revision of the Binet-Simon Tests. *J. Educ. Psychol.*, 1924, 15, 276-284.

This study was made with grade 6 B and 7 A, New York school children. The general plan of procedure was the comparison of scores made in nonlanguage tests scores made on tests presupposing average ability in English usage. The nonlanguage tests were such as the ball and field, induction tests, clock tests, etc. The language tests were such as vocabulary, naming sixty words, fables, etc. The children were divided into groups determined by the amount of English or foreign language used in the home. The conclusion reached is that there is a language handicap of from six to eight months mental age in children thirteen years old coming from foreign-language speaking homes. J. D. WEINLAND (Lehigh).

643. RUCH, R. M., and COSSMAN, L. H., Standardized Content in High School Biology. *J. Educ. Psychol.*, 1924, 15, 285-286.

This is an attempt to establish the proper essentials for a high school course in biology by the method of finding out what the best schools are teaching. An analysis of the examinations from 126 schools furnished the data, 12,000 questions in all. These analyzed for frequency and condensed to 300 were submitted to about 100 leading teachers and authorities on biology for rating. Tables are given presenting the rating of the judges, together with condensed statements of the items rated. J. D. WEINLAND (Lehigh).

644. THORNDIKE, E. L., The Improvement of Mental Measurements. *J. Educ. Res.*, 1925, 11, 1-11.

A general discussion of ways of improving the scoring and interpretation of mental measurements. S. W. FERNBERGER (Pennsylvania).

645. CHARTERS, J. A., How Two Hundred and Fifty-Eight Junior College Women Study. *J. Educ. Res.*, 1925, 11, 41-48.

Reports the results of a questionnaire for the studying of a text assignment in which it turns out that the whole method is employed by only a very few students and that their ideas regarding efficient methods of study are very vague indeed. S. W. FERNBERGER (Pennsylvania).

646. GATES, A. I., A Critique of Methods of Estimating and Measuring the Transfer of Training. *J. Educ. Psychol.*, 1924, 15, 545-558.

The problem of this survey carries with it three aspects of a rather important nature. The limitations of control group technique generally used are constructively criticised and carefully discussed. Specific tests, such as *word-perception*, *picture-name-writing*, and *digit cancellation*, are introduced to check up the present method, each test being particularly significant for the function it trained. The quantitative results, measured in terms of multiples of the standard deviations of the distributions of ability, indicate a small amount of transfer. The results, of course, depend upon the similarity of the material and the method of scoring. The second question inquires whether the amount of transfer from one function to another can be foretold. Five psychologists estimated the degrees of transfer to

the function indicated. After scrutinizing the statistics it is seen that the predictions of competent judges ". . . are suggestive substitutes for experimentation under certain conditions when sane objective guidance is provided." The third aspect, predictions of transfer based on intercorrelations of the initial tests, while advisable, has received too severe treatment. Still it proves to be a valuable check on the experimental work, especially where large differences appear making imperative further investigation along similar lines. Results predicted by statistical analysis of initial tests need elucidation in order to validate conclusions drawn from correlation methods. G. M. MICHAELS (Columbia University).

647. HAGGERTY, M. E., and NASH, H. B., Mental Capacity of Children and Paternal Occupation. *J. of Educ. Psychol.*, 1924, 15, 559-572.

Is the child's standing in school dependent upon paternal occupation? The answer to this delicate question is attempted with the aid of the Haggerty Intelligence Examination Delta 2, given to 8,121 school children. It is interesting to mention that the authors were able to get a group of subjects in one state (New York) approximating very closely the distribution of occupations of adults as listed by the United States survey. The five main groups of occupations are *professional, business and clerical, skilled and semi-skilled, agricultural, and unskilled*. Under these main heads are listed fifty-five occupations. Three-fourths of the children of druggists, physicians, teachers, brokers, officials, etc., are more capable of carrying on the work in the elementary schools than are the children of miners, stoneworkers, laborers, farmers, bakers, etc. That is, a little more than 25 per cent of the latter group are able to get as much out of the work as are 75 per cent of the former. The following are the median scores obtained: *Professional*, 121; *business and clerical*, 112; *unskilled*, 111; *skilled*, 108; *semi-skilled*, 108; *farmer*, 106. These data represent the scores of those groups in the high schools. The occupation of the parents seems to have some effect on the success of their children in school. The children of the professional class are found to be superior, with the result that a change in the curriculum is inevitable if we are to justify our claims that a child is entitled to an education commensurate with his or her ability to grasp the subject matter. G. M. MICHAELS (Columbia University).

648. ENGLEHARDT, J. L., A Test of Physical Efficiency. The Correlation Between Results Therefrom and Results from Tests of Mental Efficiency. *J. of Educ. Psychol.*, 1924, 15, 573-578.

With the aid of a modification of a test by Dr. D. A. Sargent, the author is of the opinion he has established a satisfactory index of the physical efficiency of an individual. Where Dr. Sargent's technique involved a single vertical jump, Englehardt introduced a succession of jumps executed as rapidly as possible within a specific time limit of fifteen seconds. This may ultimately prove to be an adequate measure of one's driving power or "physical efficiency." The apparatus for recording is so arranged that except for giving instructions and timing, the experimenter can work up the data in a few moments at any convenient time. After considerable experimentation it was necessary to use two separate formulae: (1) for university students, (2) for junior high school students. Formulae for calculating the indices are given. G. M. MICHAELS (Columbia University).

649. WAGER, R. E., Fixation-Accommodation Rates as Factors in Reading. *J. of Educ. Psychol.*, 1924, 15, 579-587.

The native muscular reaction-time is an essential factor in fixing the reading rate. That such muscular readjustments take place with every fixation pause has been clearly demonstrated. Besides, individuals differ in the number of fixations per line, from which follows that the "span or width in the field of regard" also varies per each individual. A clear description of the apparatus in this work can be obtained on page 579 of the Journal. The results were recorded by the kymograph and camera, and the objective data therein contained are proof of the importance of differences in motor reaction-times in reading rates. Individuals show marked dissimilarity in two important respects: First, the variability in the rate of reading; second, the variability in the fixation-accommodation-times involved in the shifting of the field of regard from a far to a near plane as well as from a near to a distant plans. G. M. MICHAELS (Columbia University).

650. NEIFELD, M. R., Formulas for Facilitating the Computation of the Mean of the Distribution Obtained by Combining Component Distributions. *J. of Educ. Psychol.*, 1924, 15, 588-591.

In getting averages of averages where the number of cases in each distribution is not the same, the formulas here presented are valuable as time-saving devices. They aid us in estimating the probable change in the mean of a distribution "when one or more component series are either subtracted from or added to the entire distribution." The reviewer ventures to say that some of the results arrived at in the past few years from the studies dealing with the intelligence of immigrants who have come to our shores in the last half century can be *entirely invalidated* by the use of these formulas. Their use is advised not only for the time they save in computation but for their more valuable asset of giving a truer picture of actual facts. G. M. MICHAELS (Columbia University).

651. REED, A. B., A Further Note on the Whole and Part Method. *J. of Educ. Psychol.*, 1924, 15, 592-595.

In reply to a recent paper by Warner Brown that the whole method of learning is better than the part method evidence is presented here that from the standpoint of number of cases available in the experiments the latter holds a more favorable position on which to base its supremacy. This is further reinforced by data from advocates of the whole method if properly interpreted. Ebert and Meumann, Ephrussi, Pechstein, and part of the data from the work of Larjuier des Bansels and Pentschew have the records of 177 subjects to verify the part method, as compared with only 43 subjects, excluding Warner Brown and Neumann (they not giving the number), who advocate the whole method of learning. The author, no doubt, realizes that the number of subjects, while an important factor, does not either validate or invalidate the whole or part method of learning. He asks for further experimentation along these lines to settle the question. Recognizing the existence of individual differences and coming to understand more fully the value of *not losing sight of the cares of the individual*, the safer thing to do is to allow the individual to choose that method which best meets his own needs. Where special cases are found to need assistance, then both methods can be experimented with in the particular case under advisement and the remedy applied. Perhaps the same subject may

use both methods according to the tasks occupying his attention at different times. G. M. MICHAELS (Columbia University).

652. HERRING, J. P., Verification of Group Examination. *J. of Educ. Psychol.*, 1924, 15, 596-602.

Is it necessary to verify extreme and crucial cases by individual tests after having their records from group tests? From the number per thousand tested according to a table presented in this discussion, the more heterogeneous the group the smaller the proportion necessary to be remeasured. Furthermore, the more reliable the test, the less need for remeasurement. For example, if the reliability correlation of a test is .85 "determined in unselected age groups," then the following is what can be expected:

873 per 1,000 may be mismeasured by 2 mental months or more.

759 per 1,000 may be mismeasured by 4 mental months or more.

529 per 1,000 may be mismeasured by 8 mental months or more.

347 per 1,000 may be mismeasured by 12 mental months or more.

Whether one is to use a group test or an individual test depends entirely upon the purpose for which the data is intended. Central tendency, dispersion, correlation, etc., may be reliable when studied from the standpoint of the group, but may be led to other results from the point of view of individual data. G. M. MICHAELS (Columbia University).

653. SHUTTLEWORTH, F. K., Method of Measuring Character Traits. *Sch. and Soc.*, 1924, 19, 679-682.

Reports a study made at the University of Iowa. Forty-one fraternity members were rated by one another for five degrees of money-mindedness. This rating correlated $.95 \pm .01$ with scores on 75 test elements chosen out of a total of 350. The elements consisted of such stimulæ as "ministry," "successful," "service," "luxurious," "burglar," "avarice," "spirit of universal brotherhood," "mothers' pensions," "win out in the financial world," "a high powered automobile," etc. To each stimulus, word or phrase or sentence, the subjects were asked to make one or more of seven responses, namely, indifference, and three degrees each of like and dislike. A correlation of .95 is amazing and causes the most optimistic to hesitate and question. T. F. LENTZ (Columbia).

654. HOROWICH, I., Psychological Tests and the Selection of Antioch Students. *Sch. and Soc.*, 1924, 20, 156-160.

Discusses aims and methods of selecting students—selecting 60 out of every 100 applicants for admission. Correlation of intelligence test scores is positive with scholastic achievement but negative with industrial record. Those making the highest and medium industrial record average 101 and 96 on the Thurstone intelligence test, while those making the lowest industrial record average 108 on the same test. The average Thurstone intelligence score for the student government officers is 102.5, for college letter athletes 83.9, and for the school as a whole 98.7. T. F. LENTZ (Columbia).

655. HART, H., and OLANDER, E., Sex Differences in Character as Indicated by Teachers' Ratings. *Sch. and Soc.*, 1924, 20, 381-382.

Reports a study in Davenport, Iowa, by the Iowa Child Welfare Research Station. Fifty high school boys and fifty high school girls were rated by three or more teachers representing both sexes on each of six traits. The girls surpassed the boys in sincerity, honesty, and energy. There was no clear difference in rating for self-control and intelligence. T. F. LENTZ (Columbia).

656. HART, H., Correlations Between Intelligence Quotients of Siblings. *Sch. and Soc.*, 1924, 20, 382.

Intelligence quotients were secured by the Stanford-Binet tests on three groups of children comprising 618 pairs of siblings. The correlation coefficients were found to be $.447 \pm .034$, $.459 \pm .006$, $.399 \pm .057$. T. F. LENTZ (Columbia).

657. BROOKS, F. D., The Transfer of Training in Relation to Intelligence. *J. Educ. Psychol.*, 1924, 15, 401-413.

This study was made with children in the Baltimore schools, doing their regular work, and bears the signs of certain limitations due to necessary school restrictions. Transfer effects were found in the functions tested, multiplication and substitution, but these transfers had almost a neutral relation to intelligence. The highest mean correlation found was that of .069 with seventh and eighth grade children. Brooks points out that before the problem of transfer can be solved extensive knowledge of practice effects in taking tests for different chronological ages and mental levels will have to be gathered.

Longer periods of training will have to be considered and the permanency of transfers tested. S. D. WEINLAND (Lehigh).

658. SYMONDS, P. M., The Accuracy of Certain Standard Tests for School Sectioning and Marking. *J. Educ. Psychol.*, 1924, 15, 423-432.

The data for this study is taken from a testing program previously described, by the same author, in the *Journal of Educational Research*, March, 1904. In this paper Symonds discusses the accuracy of derived scores which have been used to make tests more useful. "Age," such as mental age, educational age, arithmetic age, etc., are discussed; also I.Q. and Accomplishment Ratio. Two emphasized conclusions are that the Arithmetic Accomplishment Ratio obtained from single tests as a measure to be used for school marks is of the same order of reliability as ordinary school marks. And second, that the Accomplishment Ratio is more accurate, as it may be used as a school mark when the test scores themselves are accurate for the purposes of school grading or classification. S. D. WEINLAND (Lehigh).

659. THOMSON, G. H., and PINTNER, R., Spurious Correlation and Relationship Between Tests. *J. Educ. Psychol.*, 1924, 15, 433-444.

The authors here point out the error of assuming that a high correlation indicates a high degree of relationship unless attention is paid to the number of cases involved, the spread of chronological ages of the subjects examined, and the homogeneity in mental ability of the group considered. They maintain that the only safe measure for correlational comparison of tests is the correlation of mental ages for constant chronological age or, what is identical with this, of Intelligence Quotients for constant chronological age. Examples are given showing how disregarding this warning may raise a correlation from .10 to .85 or from 0 to .50, giving a thoroughly mistaken and misleading result. It is suggested that neglect of these principles in the past may have caused erroneous deductions in such matters as the degree of resemblance between two tests, reliability coefficients, the constancy of the I.Q. as judged by correlations between I.Q.'s on the same test at different times, and other similar problems. S. D. WEINLAND (Lehigh).

660. HOLZINGER, K. J., On Scoring Multiple Response Tests. *J. Educ. Psychol.*, 1924, 15, 445-447.

In a brief note it is shown that in scoring right-wrong tests the score of simple rights gives a plus one correlation with the score calculated by rights minus wrongs in all cases where every subject is allowed to finish and given a chance on all the problems. Thurston's method, published in the *Psychol. Bull.*, 1919, 16, is referred to. Holzinger gives a brief example of his thesis, with formulae. S. D. WEINLAND (Lehigh).

661. BROWN, W. M., A Study of the Predictive Value of Certain Kinds of Scores in Intelligence Tests. *J. Educ. Psychol.*, 1924, 15, 448-461.

Brown points out in this study that personality traits are exercised in taking a test that has been devised with the sole intention of measuring intelligence. By taking minus and zero scores as an index of willingness or unwillingness to take a chance, or of caution or rashness, it is quite obvious that what one does on an intelligence examination leaves behind certain evidences of character. Similarly tests devised to measure character shows signs of the intelligence of the examinee. Brown believes that soon a single composite test will be employed to measure the most important phases of an individual's intelligence and character at one and the same time. The present study makes use of data obtained from the Thorndike entrance examinations at Columbia University. The method of procedure is explained and tables given. The influence of negative scores was found particularly marked. S. D. WEINLAND (Lehigh).

12. MENTAL EVOLUTION

662. PLATH, O. E., Do Anesthetized Bees Lose Their Memory? *Amer. Nat.*, 1924, 58, 162-166.

Neither bumblebees nor hivebees lose their "memory" on being etherized, according to the author's experiments. These results are in disagreement with those of von Buttel-Reepen and Phillips. The discrepancy is explained by the evident fact that in the latter experiments the bees were injured and weakened by too great a dose of the anesthetic. R. H. WHEELER (Oregon).

663. PEARL, R., and PARKER, S., Experimental Studies on the Duration of Life. *Amer. Nat.*, 1924, 58, 193-218.

The duration of life of 3,632 individuals of *Drosophila* was studied under conditions of complete starvation. Under these conditions the vestigial type give a life-curve nearly the same as the wild type, although under conditions of full feeding the latter lives roughly three times as long. Under starvation the relative variability in duration of life is much reduced. Females live longer than males under both conditions, and are more variable than the males. The genetic significance of these results is discussed. Their important bearing is that the somatic expression of any genetic factor in any particular case is in part a function of the general environment which prevails in that case. R. H. WHEELER (Oregon).

664. BABCOCK, E. B., Species Hybrids in *Crepis* and Their Bearing upon Evolution. *Amer. Nat.*, 1924, 58, 296-310.

A genetic analysis of *Crepis capillaris* shows that gene or point mutations cause polymorphism within a plant species. But such a process, it is believed, can never bring about the origin of species having new chromosome numbers. Experiments on *C. biennis* indicate that an increased number of chromosomes may originate through irregularities in the mechanism of chromosome distribution. Tests made by crossing *setosa* and *capillaris* and *setosa* and *biennis* show that new species with different chromosome numbers may evidently originate through hybridization of old species. Thus there is evidence to support both the mutationist's and the hybridist's conception of the method of evolution. Natural selection among the individuals of new species that have recently arisen through mutation or hybridization must be hypothecated in a state of nature. The inheritance of acquired characters, especially the effects of environment on plants, may act, separately or together with mutation and hybridization, as a slow but definite factor in evolution. R. H. WHEELER (Oregon).

665. REED, H. S., The Nature of Growth. *Amer. Nat.*, 1924, 58, 337-349.

From facts of growth presented in some detail the author concludes that growth is a dynamic process which causes enlargement and differentiation in organisms. An emphasis is placed on a continuity in the growth process which has hitherto been unappreciated by physiologists. There is a dynamic equilibrium with surroundings,

and this equilibrium is a problem in chemical dynamics. It is a dynamic change in which increase in size is equal to an exponential function of time. R. H. WHEELER (Oregon).

666. LINEBURG, B., Communication by Scent in the Honey Bee—a Theory. *Amer. Nat.*, 1924, **58**, 530-537.

Observations are cited leading to the conclusion that the glands of Nassanoff are scent-producing organs used when the bee detects a source of food. A scented trail through the air enables other bees in the vicinity to find the same source of food at once. In the same way this emitted scent serves to attract other bees to the entrance of a hive. The gland seems to be exposed while the bee "fans" the air with its wings, even after lighting. It is held that other bees are attracted by the odor, rather than by the sound. The author is inclined to reject sight theories and the theory of general search which have been advanced to explain the behavior of bees in locating new hives or sources of food. R. H. WHEELER (Oregon).

667. HAMMETT, F. S., The Differential Development of the Albino Rat from 75 to 150 Days of Age and the Influence of Thyro-parathyroidectomy and Parathyroidectomy Thereon. *Amer. J. of Physiol.*, 1924, **70**, 259-272. M. J. ZIGLER (Wellesley).

668. GREENE, C. W., Physiological Reactions and Structure of the Vocal Apparatus of the California Singing Fish, *Porichthys Notatus*. *Amer. J. of Physiol.*, 1924, **70**, 496-499.

Description, with illustrations, of the structure and *modus operandi* of the vocal apparatus of this fish, along with an account of the general behavior characteristic of this genus. M. J. ZIGLER (Wellesley).

669. GREENE, C. W., and GREENE, H. H., Phosphorescence of *Porichthys Notatus*, the California Singing Fish. *Amer. J. of Physiol.*, 1924, **70**, 500-506.

Under intense stimulation and excitement this fish produces a light by means of organs which are designated as truly phosphorescent organs. Injection of suprarenal extract causes a very prolonged and brilliantly luminous appearance of these organs, hence it is suggested that they are not under nervous control but under that of a hormone. M. J. ZIGLER (Wellesley).

670. FRIES, J. A., and KRISS, M., Metabolism of Cattle During Standing and Lying. *Amer. J. of Physiol.*, 1924, 71, 60-83. M. J. ZIGLER (Wellesley).
671. MAST, S. O., and DOLLEY, WM. L., The Relation Between the Stimulating Efficiency of Intermittent Light and the Length of the Light and the Dark Periods. *Amer. J. of Physiol.*, 1924, 71, 163-173.

Observations made on the butterfly, *Vanessa antiopa*, as to the relative stimulating efficiency of light in varying the length of the light and dark periods. M. J. ZIGLER (Wellesley).

BOOKS RECEIVED

BOAS, M. I., *La Defense Psychique*. Paris: Alcan, 1924. Pp. 253. 29 fig.

WEEKS, ARLAND D., *Psychology for Child Training*. New York: Appleton, 1925. Pp. xi+312.

KALLEN, HORACE M., *Education, The Machine and the Worker. An Essay in the Psychology of Education in Industrial Society*. New York: New Republic, 1925. Pp. xiv+204.

HOLZINGER, KARL J., *Statistical Tables for Students in Education and Psychology*. Chicago: 1925. Pp. v+74.

WALKER, JEAN, *Factors Contributing to the Delinquency of Defective Girls*. Univ. of Calif. Pub., 1925, Vol. 3, No. 4, Pp. 147-213.

STERN, WILLIAM, *Neue Beiträge zur Theorie und Praxis der Intelligenzprüfung*. Beihefte Zeit. f. angew. Psychol., 1925, No. 34. Pp. xiii+193.

ELIASBERG, VLADIMIR, *Psychologie und Pathologie der Abstraktion*. Beihefte Zeit. f. angew. Psychol., 1925, No. 35. Pp. viii+188.

SNOW, A. J., *Psychology in Business Relations*. Chicago: Shaw, 1925, Pp. xv+562.

MARTIN, EVERETT D., *The Mystery of Religion*. New York: Harper, 1924. Pp. xii+391.

LEUBA, JAMES H., *The Psychology of Religious Mysticism*. New York: Harcourt, Brace, 1925. Pp. xii+336.

GESELL, ARNOLD, *The Mental Growth of the Pre-School Child*. New York: Macmillan, 1925. Pp. x+447.

Memoirs of the Royal Society of Sciences of Bohemia. (Czech) Prague: Rivnac, 1923. Pp. 125.

WECHSLER, DAVID, *The Measurement of Emotional Reactions. Researches on the Psychogalvanic Reflex*. Arch. of Psychol., 1925, No. 76. Pp. 181.

BAINBRIDGE, W. S., *Report on Second International Congress of Military Medicine and Pharmacy*. Washington: 1925. Pp. viii+148.

MACCURDY, JOHN T., *The Psychology of Emotion. Morbid and Normal*. New York: Harcourt, Brace, 1925. Pp. xvi+589.

LEFFINGWELL, WILLIAM H., *Office Management. Principles and Practice*. Chicago: Shaw, 1925. Pp. xxvii+850.

VIVANTE, LEONE, *Intelligence in Expression with an Essay Originality of Thought and Its Physiological Conditions*. (Trans. by B. Bullock; Foreword by H. W. Carr.) London: Daniel, 1925. Pp. xi+205.

Memorias do Hospicio de Juquery. Sao Paulo (Brasil), Vol. 1, No. 1, 1924. Pp. 346.

NOTES AND NEWS

It is with regret that we announce the resignation of Dr. W. V. Bingham as coöperating editor of the BULLETIN. Professor Rudolf Pintner of Teachers College, Columbia University, has been appointed coöperating editor in his stead.

PROFESSOR R. S. WOODWORTH has resigned as coöperating editor of the BULLETIN to become an advisory editor of the *Psychological Review*.

YALE University announces the appointment of Professor Harold C. Bingham, of Wesleyan University, as research associate in the Institute of Psychology and the appointments of Carleton F. Schofield and Donald K. Adams as research assistants.

PROFESSOR WOLFGANG KÖHLER, of the University of Berlin, delivered a Spencer Trask Lecture on the Intelligence of Apes at Princeton University on April 8, and Professor Edward Bradford Titchener spoke upon the History of Experimental Psychology on April 9, in honor of Princeton's new psychological laboratory.

THE Iowa Child Welfare Research Station of the University of Iowa has received a grant of \$133,500 from the Laura Spelman Rockefeller Memorial Fund to be used for research in the development of children.

HARVARD University has announced the appointment of Dr. Wolfgang Köhler of the University of Berlin as visiting lecturer for the first half of the academic year 1925-26.

THE fifth annual meeting of the Western Psychological Association will be held on July 24-25, 1925, at Berkeley, California. Psychologists are cordially invited to attend. Correspondence may be directed to the Secretary, Professor W. R. Miles, Stanford University, California, or to Professor E. C. Tolman, University of California, Berkeley, California, who is in charge of the local arrangements.

HORACE B. ENGLISH, professor of psychology at Antioch College, has been appointed associate professor of psychology at Wesleyan University.

DR. JOHN E. ANDERSON, assistant professor of psychology in Yale University, has been appointed Director of the Institute of Child Welfare to be organized at the University of Minnesota next year.

THE Board of National Research Fellowships in the Biological Sciences met on April 30 and made the following appointments and reappointments in psychology for the year 1925-1926: N. D. Hirsch, L. E. Travis, H. C. Blodgett, M. F. Metfessel and P. A. Pattie, Jr.

PROFESSOR RAYMOND H. WHEELER, of the University of Oregon, has been appointed professor of psychology at the University of Kansas.

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